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CANDLESTICK POINT STATE RECREATION AREA
SOIL AND WATER QUALITY INVESTIGATION REPORT

MARCH 13, 1990

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1.0 INTRODUCTION

This report documents the procedures and results of the soil and water quality investigation performed by Holguin, Fahan & Associates, Inc., (HFA) to characterize a 34-acre site located along the Yosemite Canal, in San Francisco, California (see Figure 1). The work was commissioned by the Department of Parks and Recreation (DPR) in a Request for Proposal (RFP) entitled "Soil and Water Quality Investigation - Candlestick Point State Recreation Area (SRA)" dated April 1989. The work was conducted in accordance with HFA's work plan that was submitted to the DPR on August 24, 1989.

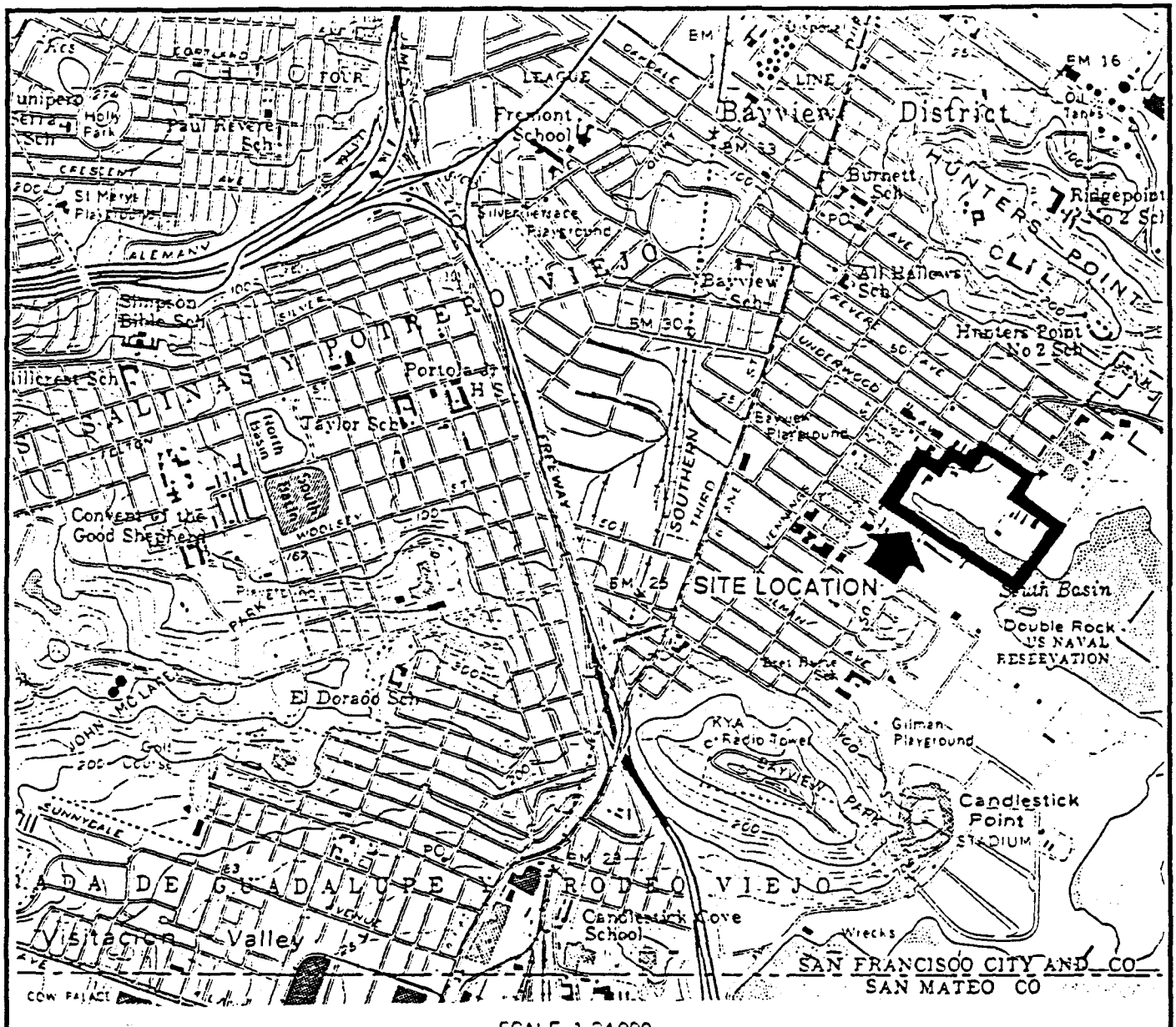
The purpose of the soil and ground water investigation was to provide preliminary data in order to identify and characterize potential environmental problems so that the suitability of the site as a proposed wetland nature area could be assessed. Creation of the desired wetland wildlife habitat will involve excavating and removing some of the existing fill, dredging the Yosemite Canal, and stabilizing the embankment along the southern side of the Yosemite Canal. Figure 2 shows the current and proposed shore lines of the Yosemite Canal as well as the area currently containing artificial fill.

2.0 BACKGROUND

2.1 SITE DESCRIPTION AND HISTORY

The proposed 34-acre nature area is located on the eastern shore of the San Francisco Peninsula in the Candlestick Point SRA, San Francisco, California. The property is bounded by Thomas Avenue, the Griffith Street Pump Station and the Hunters Point Naval Shipyard to the north; Yosemite Avenue and Candlestick Park to the south; the San Francisco Bay to the east; and Hawes Street, a railroad right of way, and commercial/industrial businesses to the west. The site is relatively flat and has an elevation ranging between zero and 10 feet above mean sea level. The southern portion of the site is bisected by the Yosemite Canal, which opens into the San Francisco Bay. Water levels within the canal are influenced by tidal action and water depths vary between zero and approximately 10 feet in depth.

Both the proposed nature area and its surroundings have been used for industrial purposes for at least 40 to 50 years and soil and ground water within the area is known to have been impacted by these usages. Potential sources of on-site contamination include: underground fuel storage tanks; petroleum and heavy metal contamination from automobile salvage operations; and contamination from off-site sources (see Table 1 and Figure 2). The known off-site sources of contamination include: underground tanks; the indiscriminate dumping of household and industrial waste; former and present automobile salvage yards; plating shops; furniture refinishing facilities; a tannery; a drum recycling facility; and several lumber yards (see Table 2 and Figure 2).



SCALE 1:24000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

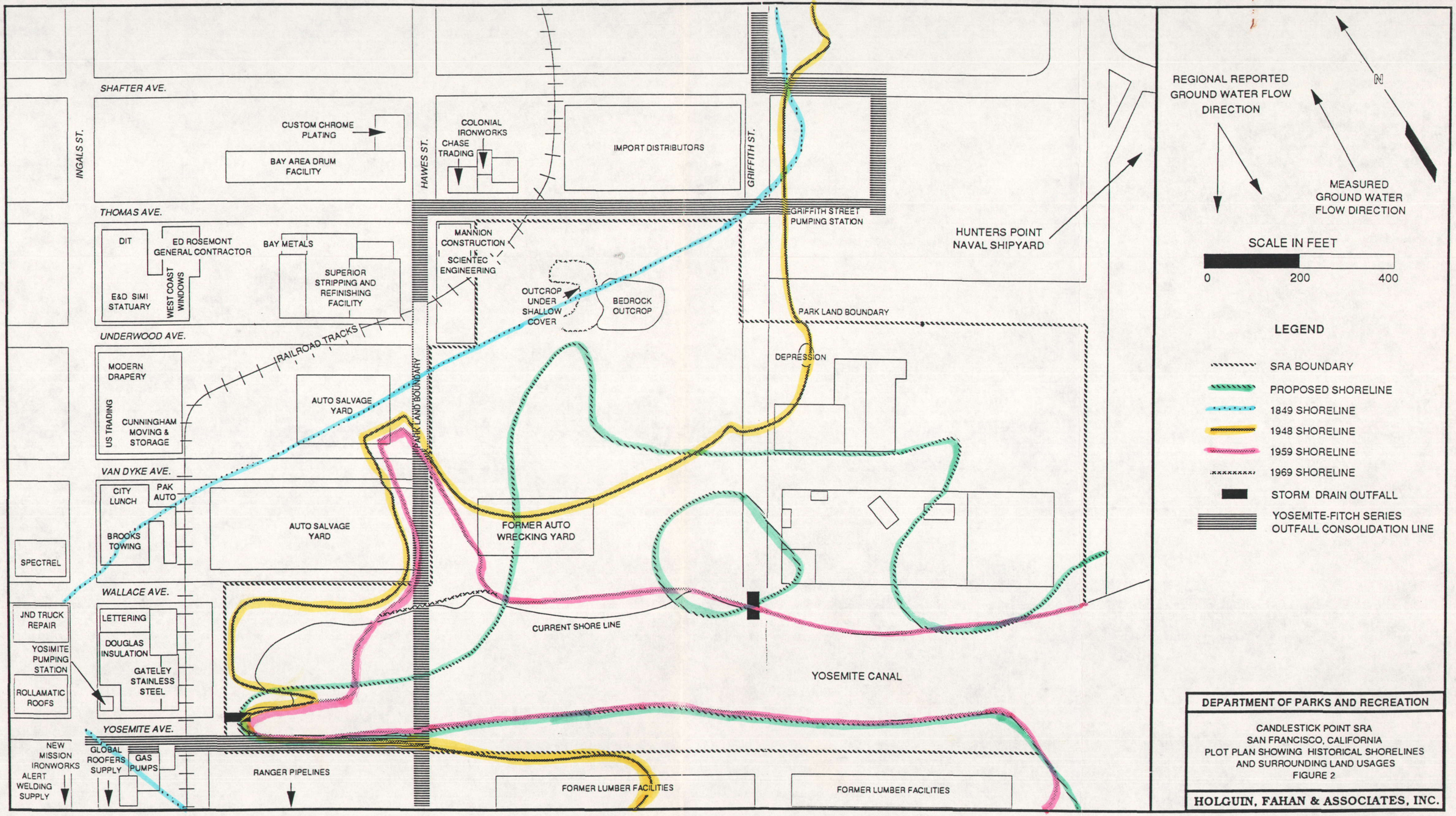
N

CONTOUR INTERVAL 25 FEET
NATIONAL GEODETIC VERTICAL DATUM 1929
DEPTH CURVES IN FEET—DATUM IS MEAN LOWER LOW WATER
THE RELATIONSHIP BETWEEN THE TWO DATUM IS VARIABLE
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 4 FEET IN PACIFIC OCEAN AND 5 FEET IN SAN FRANCISCO BAY

DEPARTMENT OF PARKS AND RECREATION

CANDLESTICK POINT SRA
SAN FRANCISCO, CALIFORNIA
SITE LOCATION MAP
FIGURE 1

HOLGUIN, FAHAN & ASSOCIATES, INC.



DEPARTMENT OF PARKS AND RECREATION

CANDLESTICK POINT SRA
SAN FRANCISCO, CALIFORNIA
PLOT PLAN SHOWING HISTORICAL SHORELINES
AND SURROUNDING LAND USAGES
FIGURE 2

HOLGUIN, FAHAN & ASSOCIATES, INC.

TABLE 1.
SUSPECTED ON-SITE SOURCES AND RESULTANT CONTAMINANTS

FUEL STORAGE TANKS	AUTOMOTIVE DISMANTLING AND REPAIR	UNKNOWN SOURCES
Petroleum Hydrocarbons, Lead	Petroleum Hydrocarbons, Lead, Other Organic and Inorganic Contaminants	Silicon Tetrachloride, PCB's, Solvents, Lead and Other Metals, Acids

TABLE 2.
IDENTIFIED OFF-SITE SOURCES AND RESULTANT CONTAMINANTS

UPGRADIENT TANNERY*	WOOD TREATMENT	BAY AREA DRUM	OTHER
Calcium Sulfide, Chromium Salts, Aluminum Salts, Acid, Sulfonated Phenols, Phenols, Formaldehyde	Copper, Chromium, Arsenic, Mercury, Formalin, Creosote, Chlorinated Phenols	Lead, Pesticides, PCB's, Oil & Grease, Vinyl Chloride, TCE, Methylene Chloride	Solvents, Acids, Metals, Others

*Not shown in Figure 2.

Levine-Fricke conducted a historical aerial photographic and records review of the site and surrounding area in 1988 (see Attachment 1 for a list of references). This study showed that the proposed nature area and surrounding land are located on reclaimed marshland and that much of the area once lay below the San Francisco Bay. The area has been progressively filled to accommodate expanding light industry in the area, and the shoreline has encroached eastward over the past century (see Figure 2). Levine-Fricke's assessment included an aerial photographic review of the years 1935, 1948, 1959, 1969, 1977 and 1985.

2.2 SURROUNDING AREA USAGE

The site is located in an area of reclaimed marshland along the western shores of the San Francisco Bay in an area that was used for dairy farming up until 1935. Since that time, light industry has been steadily increasing in density. Filling of the marshland began in the late 1930's or early 1940's.

A number of light industrial businesses have been operated in the past, and are currently operating in the immediate area (see Figure 2 for business locations). These include: metal fabricators; chrome platers; automobile salvage and wrecking yards; a drum recycling facility; lumber facilities; stripping and refinishing facilities; and other miscellaneous small manufacturing and industrial businesses. Additionally, a large sewer system, the Yosemite-Fitch sewer consolidation project, was recently completed through and adjacent to the northern part of the site. This project involves a 96-inch diameter sewer pipe and 17 to 40 foot wide box culverts that run under Yosemite Avenue from Ingles Street to Hawes Street, cross the

Yosemite Canal and run parallel to Hawes Street. The culverts were placed in trenches that were 17 to 30 feet deep.

Bay Area Drum, Inc., operated a drum recycling facility from the 1940's to 1987 on the corner of Thomas Avenue and Hawes Street. The facility handled numerous types of hazardous materials and in 1987 was closed and placed on the California Superfund list. Concentrations of lead, pesticides and PCB's above the California Department of Health Services' (DHS) total threshold limit concentrations (TTLC) were found in soil samples collected on site and from the surrounding lots during investigations by CH2M Hill in July 1987 (Levine-Fricke, 1988). In addition, oil, grease and numerous other organic compounds were found in soil samples from the vicinity of the site. Ground water samples from downgradient monitoring wells exceeded DHS drinking water action levels for chlorine, PCB's, vinyl chloride, methylene chloride and TCE (CH2M Hill, 1987).

Hunters Point Naval Station, located 2,000 feet east-northeast, is also undergoing investigations for possible soil, ground water and surface water contamination.

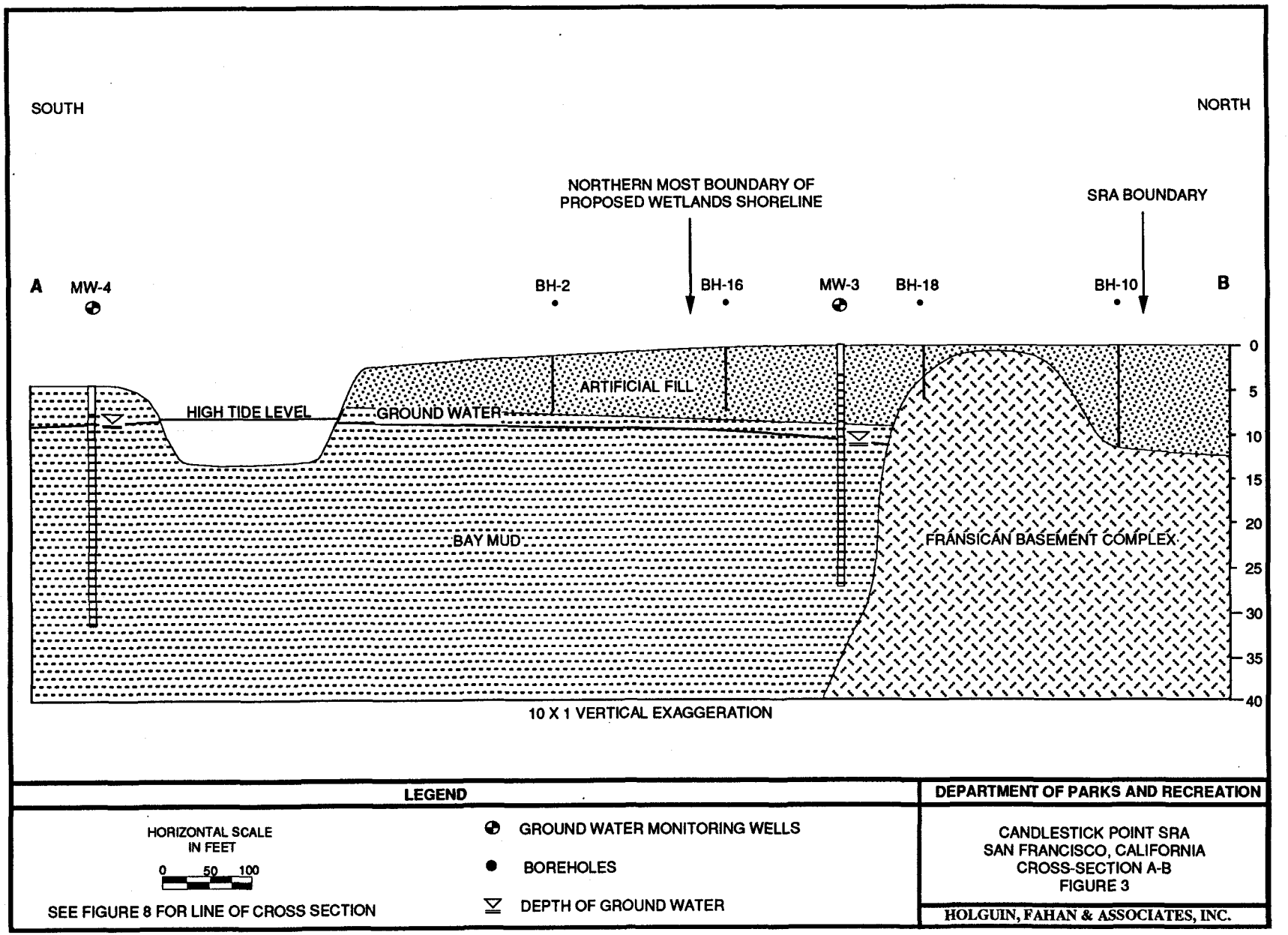
Other potential contaminant sources in the area include: indiscriminate dumping of household refuse; automobile parts; paint and paint thinner; building materials, such as brick, concrete and wood along the railroad tracks at the termination of Van Dyke, Wallace and Yosemite Avenues; and several drums containing one to two gallons of silicon tetrachloride that were removed in early 1987 by the City of San Francisco from the lot west of Griffith Street between Underwood and Thomas Avenues. Park Rangers also reported the presence of underground storage tanks in the lots west of Griffith Street between Underwood and Shafter Avenues.

2.3 GENERAL GEOLOGY AND HYDROGEOLOGY

2.3.1 General Geology

The near surface materials over the majority of the site are composed of fill containing a mixture of silty and clayey sand with various amounts of gravel, wood, brick, rock and concrete debris. The fill is underlain by Bay Mud, Bayside Sand and bedrock of the Franciscan Formation. The Bay Mud is composed of gray to greenish-gray clay and silty clay, is soft to medium-stiff in consistency, and has localized layers of sand, peat and organic clay. This unit was encountered in most monitoring wells installed during this survey at depths below 10 feet (see Attachment 2 for soil boring and monitoring well logs, and Figure 3 for the geologic cross-section).

Underlying the Bay Mud is a sand unit referred to as Bayside Sand (Dames and Moore, 1988). This is a dense, clean to clayey sand that reaches a maximum thickness of 70 feet in the vicinity of the site. This unit was not encountered during this study.



The area is underlain by bedrock of the Franciscan assemblage. The Franciscan is composed of altered volcanics, sandstone, siltstone and shale within a structurally disorganized melange formation. Franciscan bedrock crops out in the northern portion of the site in a topographical high located south of Thomas Avenue between Griffith and Hawes Streets (see Figure 2). This bedrock outcrop is composed of metamorphosed volcanic rock (greenstone), which was the only bedrock lithology encountered during this investigation. Greenstone "knockers" such as this generally occur as isolated blocks within sandstones and shales of the Franciscan Formation and the areal distribution of this type of rock below the fill material is not known. Angular greenstone rock fragments measuring a few inches to a foot in diameter make up a large component of the fill material that is scattered over the northern part of the site. These rock fragments appear to have originated from the bedrock outcrop, possibly during grading activities at the site.

2.3.2 Hydrogeology

Ground water in the area has been reported at depths between five and 16 feet below ground level in nearby monitoring wells (Dames and Moore, 1988 and Levine-Fricke, 1988). Ground water within monitoring wells installed during this study was encountered at depths of between four and 15 feet below ground level (see Table 3).

In order to determine ground water elevations and the direction of ground water flow at the site, all monitoring well elevations were surveyed to an accuracy of ±0.01 foot and a datum was established at the high tide water mark measured on the Griffith Street storm drain outfall located on the northern side of the Yosemite Canal. Water levels within each monitoring well were then measured to an accuracy of ±0.01 foot using electronic measuring. Ground water depths were then subtracted from the established datum and ground water elevations for the area were calculated (see Table 3).

TABLE 3.
ELEVATION AND DEPTH OF GROUND WATER

WELL NUMBER	FLOATING PRODUCT	WELL ELEVATION (feet above high tide level)	DEPTH TO GROUND WATER	ELEVATION OF GROUND WATER
MW-1	NONE	7.25	9.14	-1.89
MW-2	NONE	7.52	15.03	-7.51
MW-3	NONE	7.93	10.32	-2.39
MW-4	NONE	4.04	4.66	-0.62
MW-5	NONE	7.51	6.97	-0.54
MW-6	NONE	7.51	6.46	-1.05

Elevations relative to the high tide mark on the Griffith Street storm drain. The mark was 6.0 feet below the top of the storm drain at street level. Water levels were measured on November 25, 1989, between 10:50 and 11:30 a.m. High tide at Hunters Point Naval Shipyard for this date was +6.8 feet at 9:24 a.m. and low tide was 0.0 feet at 16:24.

The direction of ground water flow was determined to be to the north in the area located north of the Yosemite canal as calculated from the data shown in Table 3. This ground water flow direction is opposite of the regional ground water flow direction reported by Levine-Fricke in its March 3, 1988, report. The local ground water flow direction is believed to be greatly influenced by tidal fluctuations and may vary as much as 180 degrees, depending on tidal levels.

A potentiometric contour map of the top of the water table is shown in Figure 4. As can be seen from the map, the calculated ground water flow direction and gradient is largely influenced by the exceptionally low ground water elevation measured from monitoring well MW-2. Ground water within this well was five feet lower than within any other well on site. This may be due to a depressed water table associated with the newly constructed sewer outfall facilities located directly east of the well along Hawes Street. The ground water flow direction and gradient shown in Figure 4 may not therefore be indicative of flow directions and gradients in portions of the site not within the zone of influence of the sewer outfall facilities.

Drainage of surface runoff in paved areas surrounding the site is generally channeled into municipal storm drains. Surfacial drainage in non-paved areas located on site is expected to flow to the south into the Yosemite Canal and/or the San Francisco Bay.

Ground water within the City of San Francisco is not currently used for any beneficial purposes due to its poor quality and high concentration of total dissolved solids.

3.0 SITE ASSESSMENT PROCEDURES

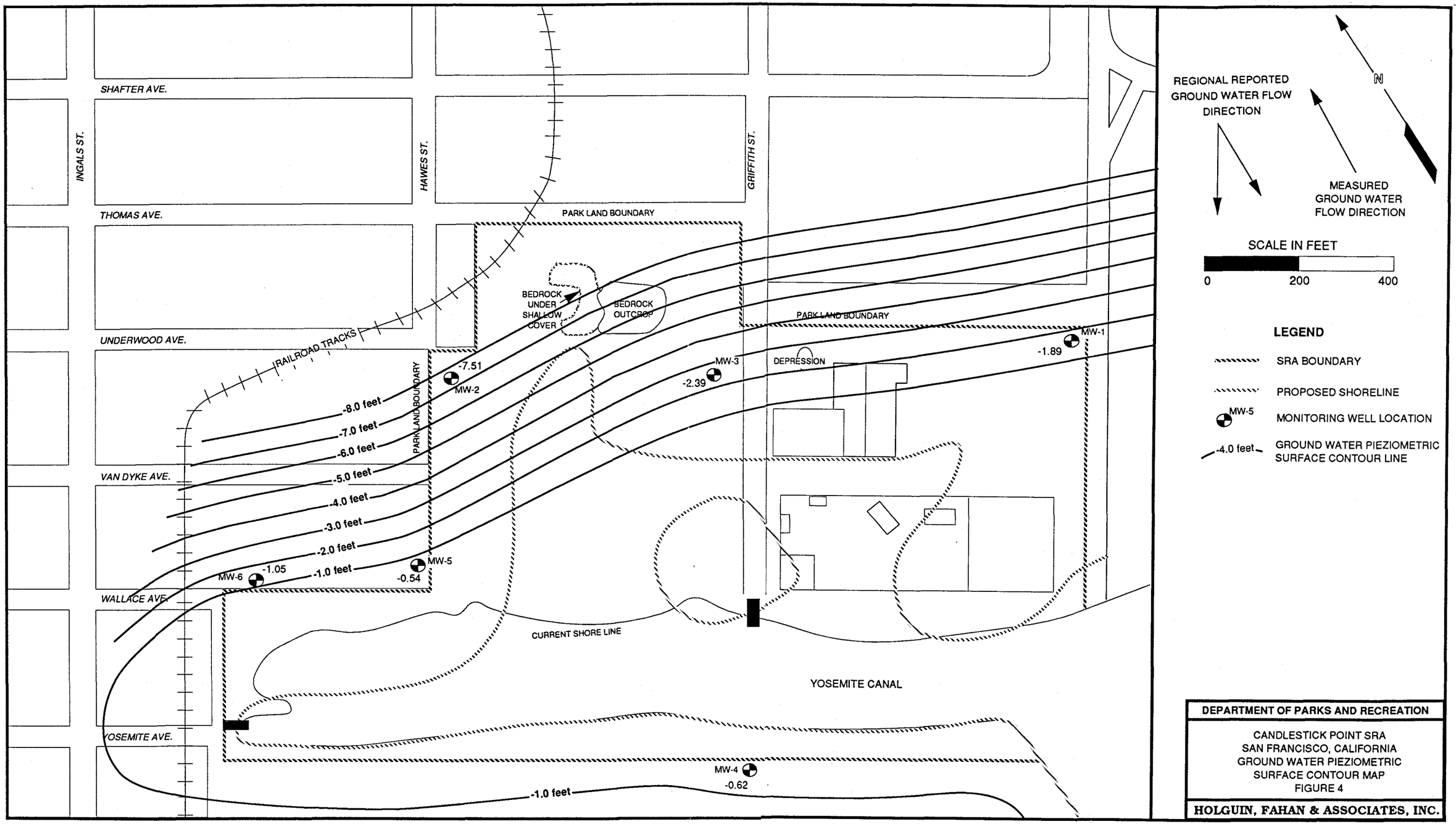
Site assessment procedures consisted of an area wide soil vapor survey, the drilling and sampling of 20 shallow boreholes, the installation and sampling of six ground water monitoring wells, sediment sampling from the Yosemite Canal, and limited surface water sampling.

3.1 SOIL ASSESSMENT

Soils on the site were characterized by soil vapor surveying, soil sampling and analyses. These are described in more detail below.

3.1.1 Soil Vapor Survey

The soil vapor survey consisted of 103 individual sampling points located in a regular grid pattern throughout the nature area (see Figure 5). At each point, the soil vapors were tested with a Photovac™ or Hnu™ photoionization detector (PID); a Summit Interests™ flame ionization detector (FID); or a Photovac™ 10S50 gas chromatograph (GC) equipped with a wide-bore capillary column and an internal oven for temperature control (see Figure 6). These instruments



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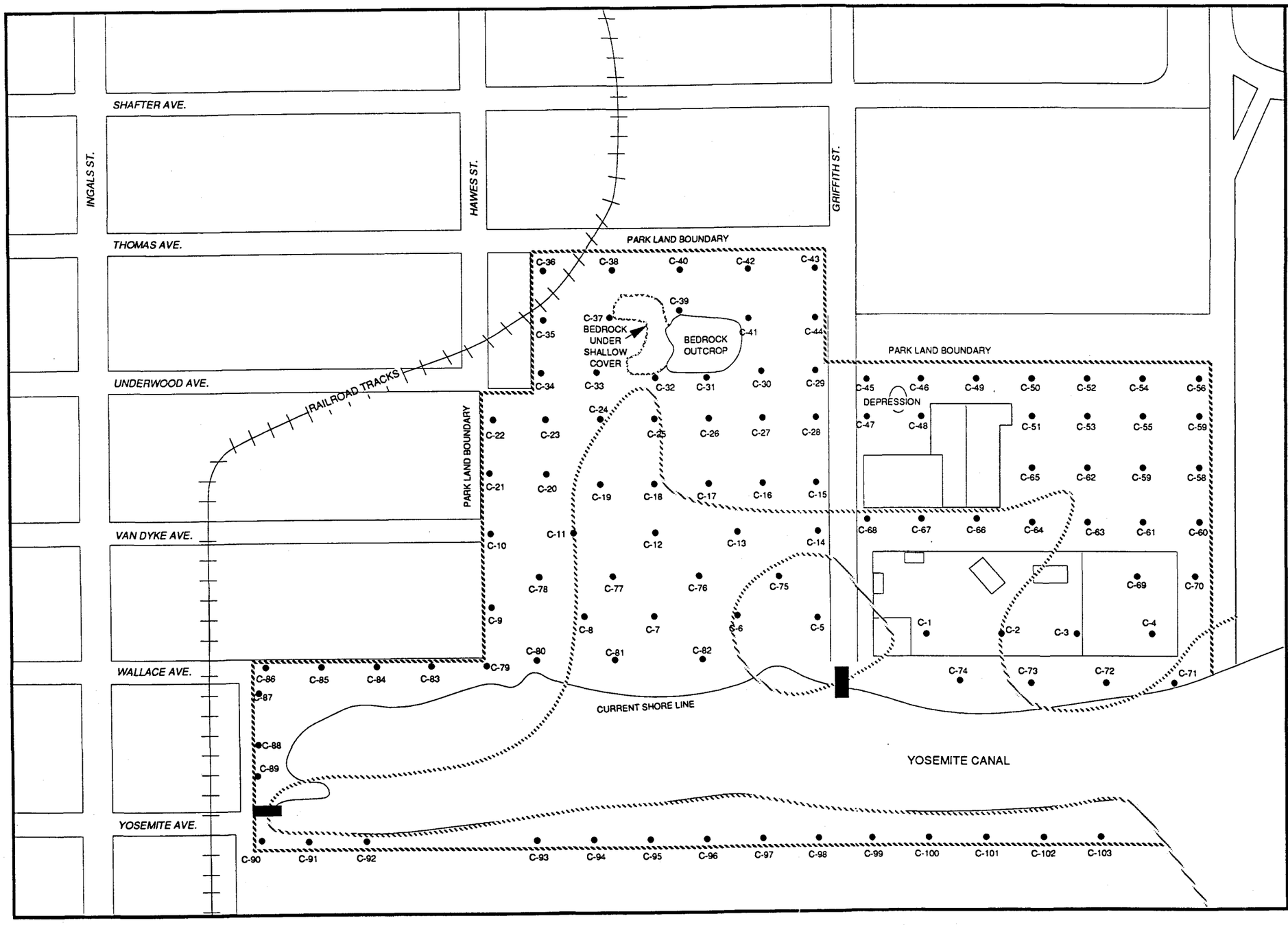
CANDLESTICK POINT SRA
SAN FRANCISCO, CALIFORNIA
GROUND WATER PIEZIOMETRIC
SURFACE CONTOUR MAP
FIGURE 4

HOLGUIN, FAHAN & ASSOCIATES, INC.



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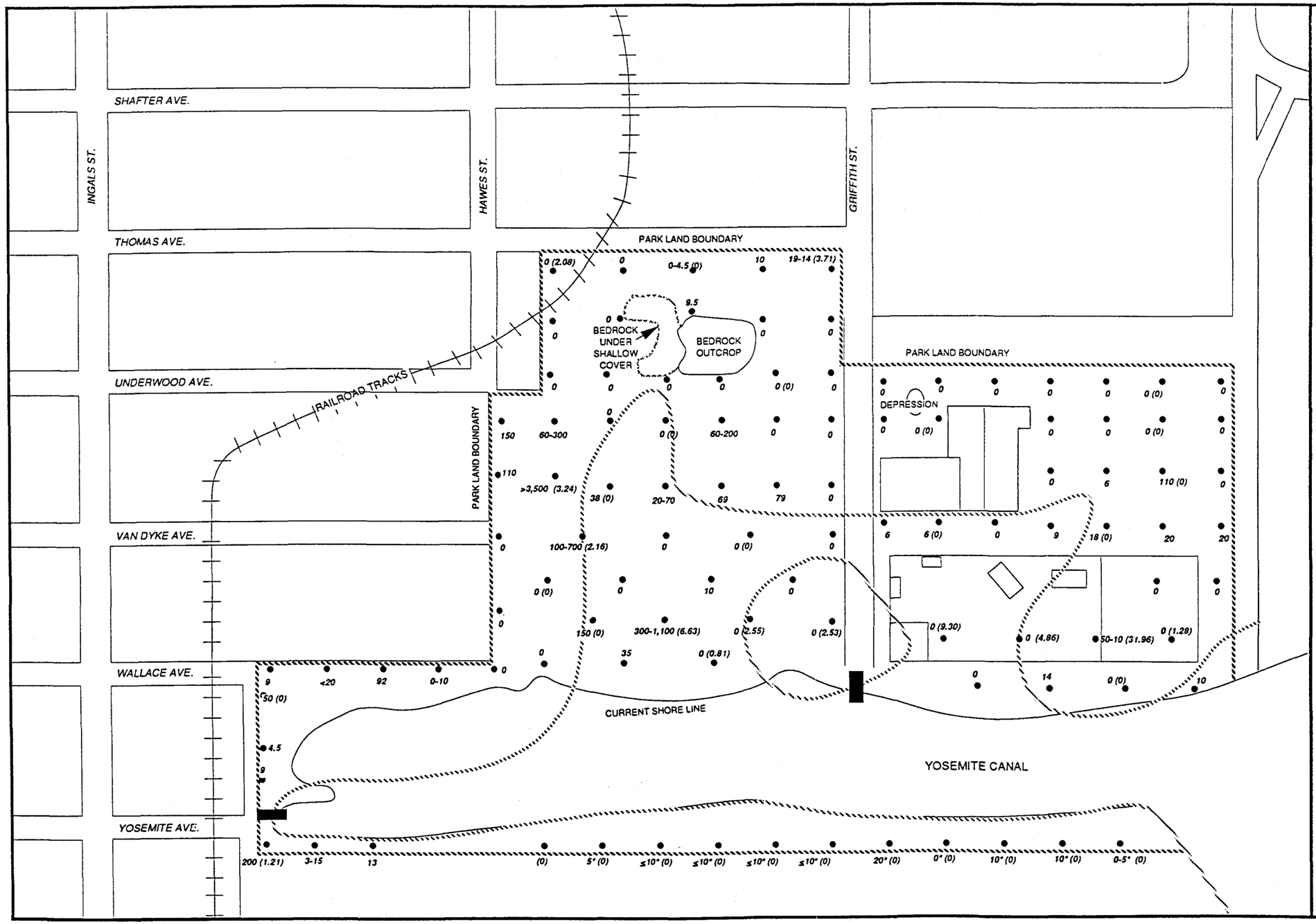
CANDLESTICK POINT SRA
SAN FRANCISCO, CALIFORNIA
SOIL VAPOR SAMPLING LOCATIONS
FIGURE 5

HOLGUIN, FAHAN & ASSOCIATES, INC.



REGIONAL REPORTED GROUND WATER FLOW DIRECTION

MEASURED GROUND WATER FLOW DIRECTION

N

SCALE IN FEET

0 200 400

LEGEND

- SRA BOUNDARY
- PROPOSED SHORELINE
- 60-300 FID READING
- (4.86) GC READING
- ≤10* PID READING

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CANDLESTICK POINT SRA
SAN FRANCISCO, CALIFORNIA
SOIL VAPOR CONCENTRATIONS
(PPM HEXANE)
FIGURE 6

HOLGUIN, FAHAN & ASSOCIATES, INC.

are capable of detecting volatile organic vapors in subsurface soils at the part per million (ppm) level.

The soil vapors were sampled by driving a 5/8-inch diameter stainless steel probe into the subsurface to depths of three to six feet. The probe was withdrawn leaving a cavity in the subsurface. A short (12 inch long) hollow, soil vapor, sampling probe was then inserted within the cavity and the vapors were extracted through the probe by means of a vacuum pump. Extracted vapors were then passed through either an FID or PID where the detector measured the concentration of the organic vapors in the sample. The FID was the primary analytical instrument used for the survey, however, the Photovac™ TIP 1 PID was also used to analyze vapor samples C-94 to C-103 because the FID malfunctioned during the final stages of the project. Additionally, 38 percent of the samples were analyzed using the GC in order to check and verify the FID and PID analyses (see Figure 7 for a diagram of the soil vapor sampling technique). Field blanks and calibration standards were run at the beginning of each day and all instruments were recalibrated periodically during the day.

3.1.2 Equipment Description

The following pieces of equipment were utilized during this survey and sample collection:

- Flame Ionization Detector: Summit Interests™ Model 1000;
- Photoionization Detector: Photovac™ TIP1 and Hnu™ Model PI101;
- Gas Chromatograph: Photovac™ Model 10S50; and
- Soil Probes: Hollow stainless steel, 5/8-inch diameter;
- Tubing: All Teflon™ tubing and seals; and
- Column: Wide-bore capillary column, heated and temperature regulated.

The FID is produced by Summit Interests of Colorado Springs, Colorado. Rechargeable batteries for up to eight hours of operation are built-in, as well as a lecture bottle of high purity hydrogen gas supplying enough carrier gas for up to 10 hours of operation. The FID is calibrated by measuring standard gas(es) and programming the library within the instrument. The injection of calibration gas(es) will be made at the beginning of each sampling day and after every five to eight sample runs. The FID contains a built-in interrogator that will quantify the ppm of a vapor when compared to known concentrations of standards.

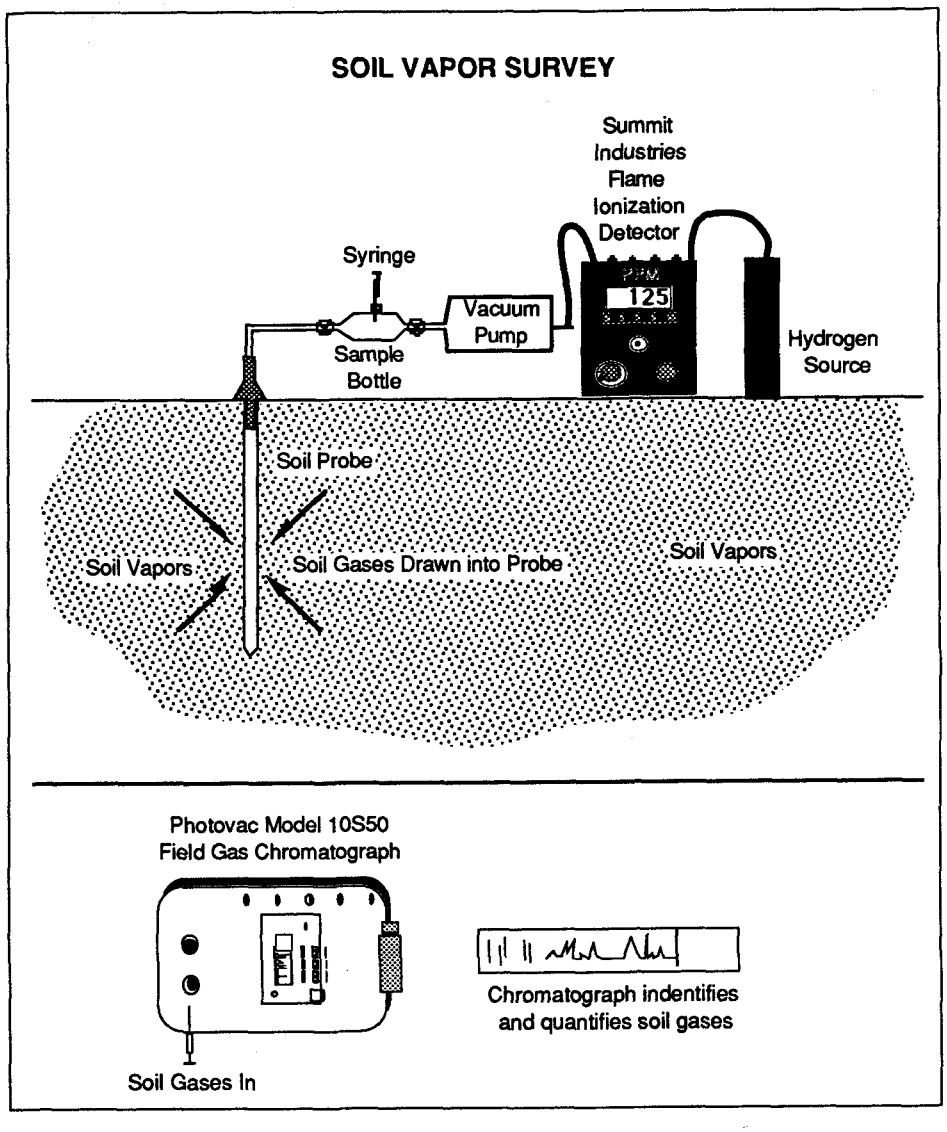


FIGURE 7.

The PID is produced by Photovac, Inc., of Thornhill, Ontario. The PID has built-in rechargeable batteries for up to four hours of operation with attachable battery packs supplying up to eight additional hours of operation. The PID is calibrated by measuring standard gas(es) of known concentrations. The instrument calibration was made at the beginning of each sampling day and after every five to eight sample runs.

The GC is produced by Photovac, Inc., of Thornhill, Ontario. It is packaged in a rugged, anodized aluminum case with a total weight of 11 kilograms. Rechargeable batteries for up to eight hours of operation are built-in, as well as a lecture bottle of high purity air supplying enough carrier gas for up to 10 hours of operation. The GC is equipped with a heated and temperature-

regulated wide-bore capillary column and a photoionization detector (PID) and contains a built-in interrogator and four libraries holding up to 25 compounds per library and enabling a chromatograph to be interpreted qualitatively and quantitatively when compared to known concentrations of standards. This instrument has the capability of separating compounds and quantifying them in the field with a sensitivity down to levels as low as 0.1 part per billion (ppb) for a one-milliliter sample volume and with a 4:1 signal to noise ratio. New peaks will be identified using their relationship to the retention times of the reference peaks. The GC is calibrated by injecting 12 microliters of standard gas(es) and programming the library within the instrument. The 12-microliter injection of calibration gas(es) was made at the beginning of each sampling day and after every five to eight sample runs.

3.1.3 Quality Assurance/Quality Control Procedures

Quality Control/Quality Assurance procedures consisted of the following:

- Calibration: Beginning of each day and every five to eight analyses thereafter;
- Field Blanks: At least daily and thereafter as needed; and

Carrier gas and soil vapor sampler system blanks were run at the beginning of the day and after every five to eight soil vapor samples to identify any latent background contamination in the GC or soil vapor sampler. Field blanks were run to check for contamination within the sampling equipment at least once daily and as often as thought needed by the operator.

Each soil vapor analyses was documented within a field logbook, and on a soil vapor monitoring log. Strip chart chromatograms were produced for each sample analyzed by the GC. The GC strip charts are maintained within the project file at HFA's corporate office. The GC data generated from the soil vapor survey is included in Attachment 3.

Additionally, the stainless steel probe was decontaminated between sampling points to prevent cross-contamination. This procedure consisted of an Alconox detergent wash; tap water rinse; and two distilled, deionized water rinses. The vapor sampling flask was purged with ambient air between samples to flush out contaminants from the previous analysis.

3.1.4 Soil Vapor Survey Results

Because vapors at the site were of an unknown composition, specific compounds or contaminants were not identified during the survey. Vapor concentrations are therefore reported as ppm referenced to a 100 ppm hexane standard. Soil vapor sampling locations are shown on Figure 5 and soil vapor concentrations are shown on Figure 6 and are listed in Table 4). The GC data reduction calculations are included in Attachment 3.

TABLE 4.
SOIL VAPOR CONCENTRATIONS
(ppm)

SOIL VAPOR SAMPLE NUMBER	INSTRUMENT AND CONCENTRATON		
	FID	PID	GC
C-1	0	-	9.30
C-2	0	-	4.86
C-3	10-50	-	31.96
C-4	0	-	1.28
C-5	0	-	2.53
C-6	0	-	2.55
C-7	300-1100	-	6.64
C-8	150	-	0
C-9	0	-	-
C-10	0	-	-
C-11	100-700	-	2.16
C-12	0	-	-
C-13	0	-	0
C-14	0	-	-
C-15	0	-	-
C-16	79	-	-
C-17	69	-	-
C-18	20-70	-	-
C-19	38	-	0
C-20	>3500	-	3.24
C-21	110	-	-
C-22	150	-	-
C-23	60-300	-	-
C-24	0	-	-
C-25	0	-	0
C-26	60-200	-	-
C-27	0	-	-
C-28	0	-	-
C-29	0	-	-
C-30	0	-	0
C-31	0	-	-
C-32	0	-	-
C-33	0	-	-
C-34	0	-	-
C-35	0	-	-
C-36	0	-	2.08
C-37	0	-	
C-38	0	-	-
C-39	9.5	-	-
C-40	0-4.5	-	0
C-41	0	-	-
C-42	10	-	-
C-43	14-19	-	3.71
C-44	0	-	-
C-45	0	-	-
C-46	0	-	-
C-47	0	-	-
C-48	0	-	0
C-49	0	-	-
C-50	0	-	-
C-51	0	-	-
C-52	0	-	-

SOIL VAPOR SAMPLE NUMBER	INSTRUMENT AND CONCENTRATON		
	FID	PID	GC
C-53	0	-	-
C-54	0	-	0
C-55	50	-	0
C-56	0	-	-
C-57	0	-	-
C-58	0	-	
C-59	110	-	0
C-60	20	-	-
C-61	20	-	-
C-62	6	-	-
C-63	18	-	0
C-64	9	-	-
C-65	0	-	-
C-66	0	-	-
C-67	6	-	0
C-68	6	-	-
C-69	0	-	-
C-70	0	-	-
C-71	10	-	-
C-72	0	-	0
C-73	14	-	-
C-74	0	-	-
C-75	0	-	-
C-76	10	-	-
C-77	0	-	-
C-78	0	-	0
C-79	-	-	-
C-80	0	-	-
C-81	35	-	-
C-82	0	-	0
C-83	0-10	-	-
C-84	92	-	-
C-85	<20	-	-
C-86	9	-	-
C-87	50	-	0
C-88	4.5	-	-
C-89	9	-	-
C-90	200	-	1.21
C-91	3-15	-	-
C-92	13	-	-
C-93	NR	-	0
C-94	-	5	0
C-95	-	≤10	0
C-96	-	<10	0
C-97	-	<10	0
C-98	-	≤10	0
C-99	-	20	0
C-100	-	0	0
C-101	-	10	0
C-102	-	10	0
C-103	-	0-5	0

- = Not used; NR = No reading. See Attachment 3 for GC data reduction and fieldlogs. Calibrated to 100 ppm hexane.

The results of the soil vapor survey show volatile organic vapors in the range of zero to 3,500 ppm as determined by FID analyses, and zero to 32 ppm as determined by PID and GC analyses. At locations where both the FID and the GC data were collected, the readings correlated well for locations with low vapor concentrations (those less than 10 ppm) and poorly for locations where high FID concentrations were detected. The high FID readings obtained at these locations are therefore interpreted as organic compounds that are not ionizable by photoionization techniques using ultraviolet light such as the PID and GC utilize. One common organic compound that can be detected using an FID and cannot be detected by a PID is methane, which is a degradation by-product commonly occurring at landfilled sites. Methane is not considered to be an environmental hazard at the concentrations observed during this study (up to 3,500 ppm).

Because the high FID readings are interpreted as methane, they can be discounted as potential contaminant locations where GC analyses showed low or non-detectable volatile organic concentrations (low concentrations are generally considered to be 10 ppm or below on the GC). Location C-3 was the only location that showed elevated volatile vapor concentrations on the GC (see Table 4). A soil sample was subsequently collected and analyzed from this location (see results from sample location BH-11 - Table 5). The results from this soil sample indicate that no volatile contamination as measured by Environmental Protection Agency (EPA) Method 8240 at concentrations above the detection levels for laboratory analytical method were present at location BH-11 (same as soil vapor location C-3).

3.1.3 Soil Borings and Canal Sediments

3.1.3.1 Sampling Procedures

Twenty-six soil borings, including six monitoring wells, were drilled to evaluate potential on-site soil contamination at the locations shown in Figure 8. Boreholes were sited at locations that showed high soil vapor concentrations as detected during the soil vapor survey, and were concentrated in the proposed excavation area for the wetlands. Boreholes were drilled using either a three-inch inside diameter hand auger or an eight-inch outside-diameter (OD) truck-mounted hollow-stem flight auger. During the drilling process, soil cuttings were logged by a California State registered geologist or an environmental professional under the supervision of a registered geologist in accordance with the Unified Soil Classification System (USCS). Soil cuttings from all boreholes were monitored for contamination with the use of olfactory senses, visual identification and a PID and this information was included on the logs (see Attachment 2).

Boreholes were drilled to the top of the water table or until penetration was blocked because of subsurface rubble or bedrock (generally at depths from three to 10 feet). Undisturbed soil samples were collected by means of a drive sampler lined with brass or stainless steel sampling rings. Sampling depths were targeted for one and four feet, and just above the water

TABLE 5.
SOIL AND CANAL SEDIMENT ANALYTICAL RESULTS
(ppm)

COMPOUND (ANALYTICAL METHOD)	DETECTION LIMIT	TTLC	STLC	SOIL BORING SAMPLE NUMBERS																			
				BH-1	BH-2	BH-3	BH-4	BH-5-3	BH-6-2	BH-7-3,5	BH-8-1,5,8	BH-9-1,5,8	BH-10-1,5	BH-11	BH-12	BH-13	BH-14	BH-15	BH-16	BH-17	BH-18	BH-19	BH-20
TPH (418.1)	5	N/A	N/A	600	190	260	***2500***	72	ND	440	310	750	70	6	110	15	850	***2800***	***1100***	44	300	140	56
Methylene Chloride (8240)*	0.005	N/A	N/A	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.009*	ND
Acetone (8240)*	0.010	N/A	N/A	ND	ND	ND	0.013*	0.012*	ND	ND	ND	ND	ND	ND	0.018*	0.015*	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide (8240)	0.005	N/A	N/A	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone (8240)	0.010	N/A	N/A	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (8240)	0.005	N/A	N/A	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.007	ND
Toluene (8240)	0.005	N/A	N/A	ND	ND	ND	ND	ND	ND	ND	0.006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene (8240)	0.005	N/A	N/A	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.7	ND	ND	ND	ND	ND
Xylenes, Total (8240)	0.005	N/A	N/A	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.010	ND	ND	***57***	ND	ND	ND	ND	ND
Lead, Total (7420)	1	1000	5.0	100	550	230	120	130	160	***1000***	***1100***	50	64	3	31	280	100	21	35	22	130	130	25
Nickel (7520)	1	2000	20	31	520	480	140	16	58	160	170	340	30	25	35	57	66	42	590	130	52	75	1100
Copper (7210)	1	2500	25	95	120	330	22	10	20	***4200***	82	31	51	4.6	13	78	40	19	31	700	31	42	16
Chromium, Total (7190)	1	2500	560	17	110	86	33	24	37	35	40	52	45	22	42	33	11	39	170	62	40	47	59

COMPOUND (ANALYTICAL METHOD)	DETECTION LIMIT	TTLC	STLC	MONITORING WELL SAMPLE NUMBERS						CANAL SEDIMENT SAMPLE NUMBERS								
				MW-1	MW-2	MW-3	MW-4-3	MW-5	MW-6	CS-1	CS-2	CS-3	CS-4	CS-5	CS-6	CS-7	CS-8	CS-9
TPH (418.1)	5	N/A	N/A	150	9	30	57	330	570	96	***1200***	68	990	660	360	280	960	***1300***
Methylene Chloride (8240)*	0.005	N/A	N/A	ND	ND	0.011*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone (8240)*	0.010	N/A	N/A	0.023*	ND	ND	0.017*	ND	ND	ND	0.160	ND	ND	0.022*	0.071*	ND	ND	0.027*
Carbon Disulfide (8240)	0.005	N/A	N/A	ND	ND	ND	ND	ND	ND	ND	0.052	ND	ND	ND	ND	ND	***0.009***	***0.009***
2-Butanone (8240)	0.010	N/A	N/A	ND	ND	ND	ND	ND	ND	ND	0.046	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (8240)	0.005	N/A	N/A	ND	ND	ND	ND	ND	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene (8240)	0.005	N/A	N/A	ND	ND	ND	0.005	ND	0.006	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene (8240)	0.005	N/A	N/A	ND	ND	ND	ND	0.010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes, Total (8240)	0.005	N/A	N/A	ND	ND	ND	ND	0.069	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total (7420)	1	1000	5.0	280	ND<5.0	30	10	220	49	***1300***	420	29	140	470	420	170	200	210
Nickel (7520)	1	2000	20	110	70	55	380	52	50	180	37	21	28	56	550	62	35	41
Copper (7210)	1	2500	25	60	43	630	45	31	29	22	76	17	34	110	140	170	95	74
Chromium, Total (7190)	1	2500	560	48	89	46	210	19	39	41	250	27	42	48	680	65	14	90

"N/A" = Not applicable for that compound. "ND" = Not detected. "TTLC" = Total threshold limit concentration. "STLC" = Soluble threshold limit concentration. *Common laboratory contaminant - the analytical results for this compound should not be considered reliable unless the concentration in the samples exceeds five times the detection limit. Numbers in bold italics exceed TTLC levels, have 10 times higher than drinking water action levels, or exceed 1,000 ppm for TPH.

table; however, the depths from which samples were actually collected varied and were dependant upon individual borehole conditions (see Attachment 2 for specific sampling depths). Sampling and drilling equipment was decontaminated between boreholes by means of a non-phosphate soap wash, tap water rinse and two deionized water rinses, in accordance with EPA protocol. The hollow-stem auger was decontaminated between each borehole by means of a steam cleaner.

Sampling rings were wrapped in aluminum foil, capped with close-fitting plastic caps, and sealed with Teflon™ tape. All samples were then labeled, recorded on chain-of-custody forms and placed in a cooler filled with dry ice for storage while in the field and during transport to the laboratory. Soil samples from each borehole were composited at the laboratory so that one sample per borehole was analyzed. Sample numbers identify borehole number and sample depths composited within each sample, i.e., BH-8-1,5,8 identifies borehole location 8 with samples composited at depths of one, five, and eight feet. Composite sampling was used to identify potentially contaminated areas from those that showed no contamination. The sampling plan was not designed to identify specific contaminant depths, contaminant concentrations from individual samples or the lateral extent of any contamination that was identified.

Nine sediment samples were also collected from the Yosemite Canal at a depth of one foot below the sediment surface (see Figure 8 for sample locations). Sediment samples were collected during low tide by means of a hand-held drive sampler loaded with decontaminated stainless steel sampling rings. Upon sample collection, sampling rings were wrapped in aluminum foil, capped, and sealed with Teflon™ tape. All samples were then labeled, recorded on chain-of-custody forms and placed in a cooler filled with dry ice for storage while in the field and during transport to the laboratory.

Samples from the boreholes, monitoring wells and canal sediments were analyzed by a DHS certified laboratory for lead, nickel, copper and chromium, TPH, purgeable organics, including solvents and benzene, toluene, ethylbenzene, and xylene (BTEX) utilizing the EPA Methods listed in Tables 5 and 6.

3.1.3.2 Soil and Canal Sediment Sample Results

A compilation of soil sampling results from the boreholes, monitoring wells and canal sediments is shown in Table 5 with the laboratory reports included as Attachment 4.

Canal sediments showed no significant variation from sample results obtained from the boreholes and monitoring wells. All soil is therefore grouped together and will be discussed as a whole. TPH was detected within all soil samples analyzed and concentrations ranged from a low of six ppm to a high of 2,800 ppm. These results indicate that soils on the site have had wide

TABLE 6.
GROUND WATER AND SURFACE WATER ANALYTICAL RESULTS
(mg/l)

COMPOUND (EPA ANALYTICAL METHOD)	DETECTION LIMIT	DRINKING WATER ACTION LEVEL	MONITORING WELL SAMPLE NUMBERS						SURFACE WATER SAMPLE NUMBER
			GW-1	GW-2	GW-3	GW-4	GW-5	GW-6	SW-1
Lead (200.7 or 239.2)	0.05/0.005	0.05	***2.3***	ND	0.020	***0.20***	ND	0.020	ND
Nickel (200.7)	0.02	N/A	0.34	0.09	0.46	0.19	0.08	0.29	0.08
Copper (200.7)	0.05	N/A	0.43	ND	0.14	0.09	ND	0.17	ND
Chromium, Total (200.7 or 218.2)	0.02/0.01	0.05	***0.18***	0.013	***0.34***	0.09	0.019	0.06	0.021
Arsenic (206.3)	0.005	0.05	0.032	ND	0.016	0.009	0.007	0.009	0.010
Mercury (245.1)	0.001	0.002	0.001	ND	ND	ND	ND	ND	ND
TPH (418.1)	1	N/A	2	ND	ND	ND	1	ND	ND
Purgeable Organics (624)	N/A	N/A	ND	ND	ND	ND	ND	ND	ND
Phenols, Total (420.2)	0.1	N/A	ND<0.4	ND	ND	ND<0.4	ND	ND	-
PCB's & Pesticides (608)	N/A	N/A	ND	ND	ND	ND	ND	ND	-
Conductivity (at 25°C)	N/A	N/A	6.06 (6.48)	19.8 (>20)	4.48 (4.19)	>20 (>20)	>20 (>20)	>20 (>20)	N/A
pH	N/A	N/A	N/A	6.62 (7.02)	6.85 (6.62)	7.15 (8.06)	6.73 (6.86)	6.70 (7.23)	N/A
Temperature (°C)	N/A	N/A	20.3 (18.7)	17.2 (17.2)	17.7 (18.0)	18.59 (18.6)	16.1 (18.1)	15.9 (17.3)	N/A

Drinking water action levels are established for potentially harmful substances to set concentration limits for long term human consumption. - = Not analyzed. ND = Not detected. Concentrations in bold italics are above drinking water action levels. Ground water sample numbers correspond to monitoring well locations. Conductivity readings = First reading (Last reading). See Attachment 4 for laboratory analyses report dated November 15, 1989.

spread exposure to petroleum contamination. The contaminant is probably heavy petroleum oils (possibly waste oil associated with automobile salvage yards) because little or no volatile contaminants were detected during the soil vapor survey, and volatile organics analyses from the soil samples also showed very low or non-detectable concentrations in most cases as determined by EPA Method 8240. The Regional Water Quality Control Board (RWQCB), the City of San Francisco Health Department, and the DHS were contacted in regard to action levels for which waste oil contamination is considered to be a threat to the environment. None of these agencies would agree to set a cleanup limit for TPH at this time. The DHS has in the past informally designated petroleum concentrations in soils over 1,000 ppm as hazardous waste; however, the agencies generally agreed that the RWQCB had jurisdiction over what the final TPH cleanup level would be for this site. This cleanup level will have to be negotiated with the RWQCB after it has reviewed all data supplied in this, and possibly future, site assessments.

Volatile organic compounds (VOC) were detected in 17 of the 35 samples analyzed. Methylene chloride, acetone, carbon disulfide, and 2-butanone are common laboratory contaminants that can occur at low concentrations during 8240 analyses. If these compounds are found at concentrations up to five times the detection limit, they are generally viewed as suspected of being a laboratory contaminant and have been so indicated in Table 5. The only sample that had concentrations of these contaminants above five times the detection limit was canal sediment sample CS-2. It is unclear whether these concentrations reflect actual on-site contaminant levels or are due to laboratory error.

The VOC's tetrachloroethene, toluene, ethylbenzene, and xylene were also detected within soil samples. These analyses are considered to be valid and representative of on-site soil conditions. In general, these compounds were detected in the low ppb range and are not considered to be an environmental problem. The only exception to this was the sample from borehole BH-15, in which ethylbenzene was detected at 3.7 ppm and xylene at 57 ppm. This borehole also had the highest level of TPH found within any soil sample on the site. Soils from borehole BH-15 were described as having a strong gasoline odor between five and 14 feet and the analytical results are indicative of weathered gasoline as the contaminant. The regulatory agencies will have to determine if these concentrations represent a potential health hazard.

The heavy metals, lead, nickel, copper and chromium were identified in sampling conducted by previous investigators as the metals of concern at the site. All soil and canal sediment samples were therefore analyzed for these elements as shown in Table 5. The table also lists the TTLC and the soluble threshold limit concentrations (STLC) for these metals as listed in Title 22 of the California Code of Regulations (CCR). Title 22 specifies that any substance that exceeds the listed TTLC is designated as a hazardous waste. TTLC values were exceeded at three locations; lead was above the TTLC within boreholes BH-7 and BH-8 and within canal sediment

sample CS-1. Copper was above TTLC values within borehole BH-7. Soluble concentrations of the metals were not evaluated for soils during this investigation.

Because lead, nickel, chromium and copper are present to some degree in all soils, metal concentrations below TTLC values are generally evaluated with regard to background concentrations for soils within the surrounding area, as well as these soluble levels as related to STLC limits in CCR Title 22, Section 66699. Little information is presently available concerning background concentrations for these metals in local soils. Chemical analyses from bedrock types similar to those that crop out on the site (Franciscan greenstone) have chromium concentrations reported to be in the range of 13 to 307 ppm and nickel concentrations ranging from nine to 83 ppm (Shervais and Kimbrough, 1987). CH2M Hill, the contractor investigating the Bay Area Drum State Superfund site, reported maximum background concentrations in local soils to be 469, 95.9, 67.1, and 48.7 ppm for lead, nickel, chromium, and copper respectively. These concentrations correspond reasonably well with concentrations found in soils on the site. However, more work is needed to establish actual background concentrations for all metals detected, as well as the soluble metal concentrations as related to STLC limits as specified by CCR Title 22, Section 66699. After solubility tests are made, an evaluation concerning the concentration of metals requiring remedial action, and the extent of soils to be remediated can be made.

3.1.3.3 Waste Handling and Disposal Procedures

Soil cuttings generated during the drilling of six ground water monitoring wells were placed in 55-gallon Department of Transportation (DOT) 17H drums and stored on site until a determination of their hazardous potential could be made.

Soil borings were drilled with a two-inch diameter hand auger and less than 10 pounds of cuttings were generated from each borehole. Because of the small volume of soil generated at each borehole location, the hand-drilled cuttings were not containerized and instead were left on site at the boreholes.

Soil samples analyzed from the boreholes and monitoring wells showed only locations BH-7 and BH-8 to contain contaminants above California hazardous waste criteria. Soil cuttings from these boreholes were left at the borehole location and were not containerized. Containerized cuttings generated from installation of the six monitoring wells were shown to be non-hazardous and discharged at the site.

3.2 GROUND WATER AND SURFACE WATER ASSESSMENT

On October 10 and 11, 1989, six ground water monitoring wells were constructed around the perimeter of the proposed nature area as shown on Figure 8. Monitoring wells MW-3 and MW-6 were relocated to their present positions from those recommended in the work plan due to

SHAFTER AVE.
INGALS ST.
HAWES ST.
GRIFFITH ST.
THOMAS AVE.
UNDERWOOD AVE.
VAN DYKE AVE.
WALLACE AVE.
YOSEMITE AVE.
RAILROAD TRACKS
PARK LAND BOUNDARY
PARK LAND BOUNDARY
PARK LAND BOUNDARY
B
A
BH-10
BH-19
BEDROCK UNDER SHALLOW COVER
BEDROCK OUTCROP
BH-18
MW-3
MW-2
BH-14
BH-15
BH-16
DEPRESSION
MW-1
BH-1
BH-20
BH-8
BH-17
BH-9
BH-2
MW-5
MW-6
BH-4
BH-3
BH-11
BH-12
BH-5
CS-1
CS-2
CURRENT SHORE LINE
CS-5
CS-7
BH-13
CS-9
CS-8
SW-1
YOSEMITE CANAL
CS-4
CS-6
CS-3
BH-6
BH-7
MW-4

REGIONAL REPORTED GROUND WATER FLOW DIRECTION

MEASURED GROUND WATER FLOW DIRECTION

N

SCALE IN FEET

0 200 400

LEGEND

- SRA BOUNDARY
- PROPOSED SHORELINE
- MW-5 MONITORING WELL LOCATION
- BH-4 BOREHOLE LOCATION
- CS-1 CANAL SEDIMENT LOCATION
- SW-1 SURFACE WATER SPRING LOCACION

SEE FIGURE 3 FOR THE CROSS SECTION VIEW OF A-B

DEPARTMENT OF PARKS AND RECREATION

CANDLESTICK POINT SRA
SAN FRANCISCO, CALIFORNIA
SOIL AND GROUND WATER
SAMPLING LOCATIONS
FIGURE 8

HOLGUIN, FAHAN & ASSOCIATES, INC.

shallow bedrock obstructions encountered above the water table that prohibited the wells from being installed as proposed. The well locations were chosen to provide the most thorough coverage of both on-site and potential off-site migration of ground water contaminants. One surface water sample was also collected from a spring located at the eastern most end of the Yosemite canal.

3.2.1 Monitoring Well Installation

An eight-inch OD hollow-stem, flight auger was used to drill the monitoring wells to a depth of 20 feet below the first encountered ground water. Cuttings from the wells were logged by a registered geologist, and soils were classified according to the standard USCS. Observations regarding the types and quantities of waste materials encountered and all PID readings of cuttings were logged and recorded on monitoring well logs (see Attachment 2).

Monitoring wells were constructed of two-inch inside diameter polyvinyl chloride (PVC) casing with 0.020-inch perforations extending from the bottom of the hole to three to five feet below the ground surface. Perforations extended at least two feet above the top of the high-tide water depth in the wells to allow for tidal fluctuations. Following the pipe installation, #3 Monterey sand was placed in the well annulus as a gravel pack followed by two to three feet of bentonite and one to two feet of concrete to seal the well from surface infiltration, as well as to support the traffic bearing access box. The design of the wells followed the DHS and State Water Resources Control Board guidance manuals. Detailed construction diagrams are shown in Attachment 5.

3.2.1.1 Ground Water Sample Collection Procedure

The monitoring wells were checked for an immiscible layer, but none was detected. The wells were then developed by pumping with a PVC hand pump until non-turbid ground water was produced. The wells were allowed to recharge and were then purged an additional four to seven well volumes prior to extracting a sample representative of the in-situ ground water conditions. During the purging process, the conductivity and temperature of the produced water were constantly measured (see Attachment 6 for the water sample logs). Purging continued until the measured parameters had stabilized, at which time ground water samples were collected. Produced ground water was stored on site in 55-gallon drums.

A decontaminated Teflon™ bailer was used to sample the wells. Ground water samples were placed in decontaminated containers with the appropriate preservatives, which were supplied by the analytical laboratory. The samples were labeled, sealed, and recorded on chain-of-custody forms and placed in a transport container that was filled with Blue-Ice™ for cooling purposes while in the field and during transportation to the laboratory. Samples were tested for metals, including lead, nickel, copper, chromium, arsenic, mercury; for organochlorine pesticides and PCB's by EPA Method 603; for total recoverable petroleum hydrocarbons by

EPA Method 418.1; for purgeable organics, including solvents and benzene, toluene, ethylbenzene, and xylene (BTEX) by EPA Method 624; and for total phenols by EPA Method 420.2.

3.2.2 Surface Water Sampling Procedures

The only surface water observed at the site, other than San Francisco Bay water, was from a spring located at the eastern end of the Yosemite Canal (see Figure 8 for spring location). The spring was located below the high-tide level of the canal, and has been observed flowing throughout the year by one of the DPR employees (Daniel Dungy, DPR Ranger). Sewer discharge was not sampled as the local Publicly Owned Treatment Works regularly samples and regulates this discharge.

The spring water was sampled at low tide so that the spring was exposed to the atmosphere. Samples were collected by allowing the spring water to run directly into sample containers with as little agitation as possible. Sample containers were supplied by the analytical laboratory and contained the appropriate preservative for each particular analysis. Surface water samples were labeled, sealed and recorded on chain-of-custody forms. The samples were placed in a transport container that was filled with Blue-Ice™ for cooling purposes, and were transported to a DHS certified laboratory for analysis. Surface water samples were analyzed for the same constituents as the ground water samples with the exception of phenols, PCB's and pesticides (EPA Methods 420.2 and 8080).

3.2.2.1 Ground Water and Surface Water Sample Results

The results of ground water sampling are shown in Table 6 and laboratory reports are included in Attachment 4.

The water analyses showed no pesticides, PCB's, phenols or purgeable organics to be present within ground or surface waters sampled at the site. Low concentrations of total petroleum hydrocarbons (one to two ppm) were found in water samples from monitoring wells MW-1 and MW-5 (samples GW-1 and GW-5). These samples did not have any purgeable organics associated with the TPH concentrations, indicating that the TPH concentrations are probably due to the leaching of waste oils that were found in most soils sampled at the site.

Chemical analyses for the heavy metals, lead, nickel, copper, chromium, arsenic, and mercury were also conducted for both surface and ground water samples. The water analyses showed low concentrations of most of the metals to be present in all samples. Metal concentrations were above drinking water action levels for lead in monitoring wells MW-1 and MW-4, and above action levels for chromium in wells MW-1 and MW-3. Arsenic and mercury concentrations were below drinking water action levels in all wells, and no drinking water action levels exist for the metals nickel or copper. The surface water sample showed no metal concentrations above drinking water action levels.

Drinking water action levels are established by the DHS for potentially harmful substances and are used to set concentration limits for which long term human consumption is considered safe. These criteria may not be the appropriate standard for evaluating dissolved metal concentrations in ground water at this site. They are referenced here only because they give a conservative indication of limits that may be applied to ground water by regulatory agencies. Applicable action levels for ground water are determined on a case by case basis by the RWQCB and are based on background concentrations of metals in ground water within the area, the quality and potential usages of the area wide ground water, and the potential impact of the dissolved metals on the health and or environment of the area. Metal concentrations above which remedial actions will be required will have to be negotiated with the RWQCB.

3.2.2.2 Disposal of Containerized Ground Water

Approximately 120 gallons of ground water purged from the six on-site monitoring wells were stored on site in 55-gallon DOT drums. After laboratory analyses showed that the ground water was non-hazardous, the RWQCB and the City of San Francisco Public Works Department, Industrial Waste Division were contacted about disposal of the water through the City sewer system. Both agencies agreed that the water could be sent through the sewer system, and it was therefore disposed of in this manner.

4.0 SUMMARY OF FINDINGS AND DISCUSSION

This study was commissioned by the DPR in order to identify and characterize the contaminants present on the site, to identify potential environmental problems associated with the creation of the proposed wetlands, to evaluate the costs associated with excavation and removal of soil and sediment from the site, and to evaluate the overall feasibility of establishing a wetlands given the chemical characteristics of subsurface soil and ground water at the site. Each of these objectives has been addressed in turn.

4.1 IDENTIFY AND CHARACTERIZE CONTAMINANTS PRESENT AT THE SITE

The primary contaminants identified during this study were heavy metals and TPH in the canal sediments and in soils located throughout the site. Lead concentrations in soils and canal sediments measured greater than 50 mg/kg (10 times the STLC level) in 22 of the 29 soil and sediment samples collected. Lead concentrations exceeded TTLC levels (1,000 mg/kg) in three of the samples, thereby establishing these samples as hazardous waste. TTLC levels for copper were also exceeded in one of the three samples.

TPH was detected in all soil samples analyzed on the site and, in all but one instance, it was probably due to waste oils and/or other heavy, non-volatile petroleum products.

TPH exceeded 100 ppm in 23 of the 35 samples analyzed and exceeded 1,000 ppm in five of these samples.

At this time it is not clear how these contaminants found their way onto the site. Three possibilities are:

1) They could have been incorporated within the fill materials prior to their being placed on site;

2) They could be the result of on-site dumping or be the result of discharges by on-site facilities; or

3) They could have migrated from an off-site source.

The most likely hypothesis is that the contamination is primarily due to on-site activities or was previously incorporated within the fill materials. Off-site sources may have contributed to the contamination, but because heavy hydrocarbons and lead are not very mobile under most environmental conditions, and because of the widely dispersed contaminant locations and the lack of any identifiable plume or pattern, contamination from off-site sources is probably minor.

It is also unclear at this time the concentration at which the regulatory agencies will require cleanup of metals and TPH. Potentially, all dredged material could be considered hazardous and require special handling and disposal at costs up to $300 per cubic yard. Cleanup levels for metals and TPH will first have to be negotiated with the regulatory agencies and a more detailed study conducted, which delineates the areal extent and depth of the contaminants, before any reasonable estimate of costs associated with the excavation and disposal of dredge materials can be made.

Regulatory agencies that will be responsible for establishing the contaminant action levels will be the RWQCB, the DHS, and the City of San Francisco Health Department, in accordance with the Maher Ordinance.

4.2 IDENTIFY POTENTIAL ENVIRONMENTAL PROBLEMS ASSOCIATED WITH THE CREATION OF THE PROPOSED WETLANDS

The environmental problems that have been identified to date are elevated heavy metal and heavy hydrocarbon concentrations in the soil, sediment, and ground water at the site. These contaminants could have two impacts on the creation of the proposed wetlands. First, the soluble component of the heavy metals could contribute to a biocidal effect on the microorganism community that must develop at the site in order to have a viable wetlands,

thereby restricting the recolonization of the wetlands to those organisms that are able to withstand the present environmental conditions. Secondly, the regulatory requirements associated with the remediation of contaminants in soils and ground water at the site may make the creation of the proposed wetlands cost prohibitive.

4.3 EVALUATE THE COSTS ASSOCIATED WITH EXCAVATION AND REMOVAL OF SOIL AND SEDIMENT FROM THE SITE

The cost for remediating the contaminants identified by this study cannot be estimated at this time for the following reasons:

1) The level of hydrocarbons and heavy metals at the site could be considered high enough to require cleanup by the RWQCB or the DHS. However, cleanup levels are set on a site by site basis and are based on background concentrations in the area, the depth to and uses of ground water in the area, and the health sensitivity of the area. Until it is known whether the regulatory agencies will require cleanup of the contaminants identified at the site, and until action levels are established, it is not possible to estimate cleanup costs.

2) The sampling for this preliminary assessment was designed to screen the site for possible contamination. Sampling was therefore conducted on a systematic basis with a sample spacing of approximately 150 feet. This sample frequency is not fine enough to delineate the boundaries of any identified contamination. A meaningful estimate of the cost to mitigate the contamination must therefore await a more detailed assessment.

3) Heavy metal concentrations that could exceed the STLC's have been identified in 22 of the 29 soil and sediment samples collected at the site. Until solubility tests, conducted in accordance with CCR Title 22, Section 66700, have been performed on soil and sediment samples, the volume of material that exceeds these levels is unknown. STLC's of the soils will be required by the regulators before they can establish site cleanup action levels.

4.4 EVALUATE THE OVERALL FEASIBILITY OF ESTABLISHING A WETLANDS GIVEN THE CHEMICAL CHARACTERISTICS OF SUBSURFACE SOIL AND GROUND WATER AT THE SITE

Based on the current available information, it is not possible to estimate the feasibility of establishing a wetlands at this facility. Additional studies, as outlined below, will be required.

5.0 CONCLUSIONS AND RECOMMENDATIONS

High concentrations of heavy metals and TPH were found in soil samples collected throughout the site and appear to the primary concern identified by this study. Ground water and surface water appeared to have been impacted, but dissolved contaminant concentrations were generally found to be low and probably will not significantly impact the establishment of a wetlands in this area. The next phase of the investigation should therefore concentrate on establishing background levels for the area, establishing action levels with the regulators, and determining the limits of the soil contamination on the site.

Recommendations for additional work include:

1) Establish naturally occurring background levels for metals in the bedrock that crops out at the site, in fill materials that have been used in other parts of San Francisco Bay, and in naturally occurring soils developed on similar types of bedrock;

2) Establish naturally occurring metal concentrations in shallow ground water wells in other parts of the City of San Francisco;

3) Determine the constituent makeup of the hydrocarbon contamination detected throughout the soil, sediment and ground water at the facility through additional testing;

4) Determine the lateral and vertical extent of the contamination identified during this study by further soil sampling;

5) Negotiate action levels with the RWQCB and the DHS for the identified contaminants;

6) Evaluate the costs for disposal of excavated materials after action levels have been established and the areal and vertical extent of contamination has been mapped and its volume calculated; and

7) Determine through literature research, if possible, or microcosm studies, if necessary, if the levels of organics and heavy metals will impact the recolonization of the wetlands by microorganisms.

The costs associated with completing this next phase of the investigation are estimated to be $50,000 to $75,000.

ATTACHMENT 1

LIST OF REFERENCES

LIST OF REFERENCES

1. Levine-Fricke, Emeryville, California, "Proposed Phase I Soil and Water Quality Investigation Candlestick Point State Recreation Area, San Francisco, California - Draft Copy", March 3, 1988.

2. Dames and Moore, San Francisco, California, "Proposal Soil and Water Quality Investigation Candlestick Point State Recreation Area, San Francisco, California", December 6, 1988.

3. Kenneth Gray, California State Department of Parks and Recreation.

4. Daniel Dungy, Chief Ranger San Francisco District, California State Department of Parks and Recreation.

5. Steve Medburry, City of San Francisco Public Works Department, telephone conversation of December 15, 1989.

6. Anna Cross, Park Maintenance Chief, San Francisco District, California State Department of Parks and Recreation.

7. Pam Hollis, City of San Francisco Health Department, Hazardous Waste Section, telephone conversation of November 30, 1989.

8. Diane White, Regional Water Quality Control Board-Oakland, telephone conversation of November 30, 1989.

9. Jim Salerno, City of San Francisco Sewer Discharge, telephone conversation of November 21, 1989.

10. Stan Snock, Department of Public Works, Industrial Waste Division of Clean Water, telephone conversation of November 21, 1989.

11. Tommy Lee, Department of Public Works, Industrial Waste Division of Clean Water, telephone conversation of November 13, 1989.

12. CH2M Hill, Remedial Investigation Report, Bay Area Drum State Superfund Site, December 1987.

13. Shervais, J.W. and Kimbrough, D.L., 1987, "Alkaline and Transitional Subalkaline Basalts in the Franciscan Complex Melange", in Morris, E.M. and Pasteris, J.D., eds., Mantle Metasomatism and Alkaline Magmatism, Geological Society of America Special Paper 215, p. 167-182.

HOLGUIN,
FAHAN
& ASSOCIATES, INC.

ENVIRONMENTAL MANAGEMENT CONSULTANTS

ATTACHMENT 2

LOGS OF SOIL BORINGS AND MONITORING WELLS

LOG OF MONITORING WELL

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: 8" hollow-stem auger
DRILLED BY: HEW Drilling Company

DRILL HOLE NO.: MW-1
DRILL HOLE LOCATION: 50' southerly and 50' westerly at right angles from northeastern corner of park boundary fenceline

DATE: October 10, 1989
PREPARED BY: S. Richardson, Reg. Geol. #4684
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
MW-1-4	0-4		5	1"	<1	70	30	brown	Silty Sand (SM); with gravel (angular), cultural debris,dense, non-plastic, slightly moist, no odor, no stain
MW-1-8	4-8		2	1/2"	5	15	80	dark gray	Silt (ML); with sand, gravel (angular), and clay, stiff, low plasticity, moist, no stain, wet sample, water table at 8' Blow count = 16, 10, 24
	8-30		2	1"	5	25	70	gray	Silt (ML); with sand, gravel (angular) and clay, stiff, low plasticity, wet, no odor, no stain, cultural debris

* Type of PID utilized: Photovac TIP 1, Serial No: 0874300, Calibrated to: 100 ppm, Number of background samples taken: 3, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF MONITORING WELL

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: 8" hollow-stem auger
DRILLED BY: HEW Drilling Company

DRILL HOLE NO.: MW-2
DRILL HOLE LOCATION: 80' southerly and 30' easterly at right angles from intersection of railroad spur and fenceline

DATE: October 10, 1989
PREPARED BY: S. Richardson, Reg. Geol. # 4684
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
	0-1		0	1"	80	20	-	green gray	Gravel (GP); with sand, angular, poorly graded, dense, non-plastic, dry, no odor, no stain
	1-1.5		0	1/2"	10	70	20	black	Sand (SM); with silt and gravel (angular), well graded, dense, non-plastic, moist, slight heavy petroleum (asphalt) odor, dark stain
	1.5-3		0	1/2"	10	60	30	brown	Silty Sand (SM); with gravel (angular), well graded, dense, non-plastic, moist, no odor, no stain, includes a thin layer of green clay
MW-2-4	3-7		0	3"	30	50	20	brown	Gravelly Sand (SM); with silt and clay, well graded, angular, dense, non-plastic, moist, no odor, no stain Blow count = 10, 15, 20
MW-2-9	8-21		0	1/4"	5	5	90	reddish brown	Clay (CL); with sand and gravel, stiff, high plasticity, moist, no odor, no stain Blow count = 3, 4, 3
	21-30		0	1/8"	5	5	90	gray	Clay (CL); with sand and gravel, stiff, high plasticity, wet, no odor, no stain

* Type of PID utilized: Photovac TIP 1, Serial No: 0874300, Calibrated to: 100 ppm, Number of background samples taken: 3, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF MONITORING WELL

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: 8" hollow-stem auger
DRILLED BY: HEW Drilling Company

DRILL HOLE NO.: MW-3
DRILL HOLE LOCATION: 108' southerly and 65' westerly at right angles from corner of fence at northwest corner of the intersection of Griffith St. and Underwood Ave.

DATE: October 10, 1989
PREPARED BY: S. Richardson, Reg. Geol. #4684
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
MW-3-4	0-8		0	3/4"	10	10	80	brown	Silty Clay (CL); with sand and gravel (angular), high plasticity, moist, stiff, no odor, no stain Blow count = 4, 4, 4
	8-9		2	1"	5	5	90	reddish brown	Clay (CL); with sand and gravel (angular), high plasticity, moist, stiff, no odor, no stain
MW-3-10	9-12		0	2"	80	10	10	brown	Gravel (GP); with sand and gravel, poorly graded, angular, dense, non-plastic, wet, no odor, no stain Blow count = 8, 10, 12
	12-30		0	-	-	<1	100	light brown	Clay (CL); with sand, low-medium plasticity, wet stiff, no odor, no stain

* Type of PID utilized: Photovac TIP 1, Serial No: 0874300, Calibrated to: 100 ppm, Number of background samples taken: 3, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF MONITORING WELL

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: 8" hollow-stem auger
DRILLED BY: HEW Drilling Company

DRILL HOLE NO.: MW-4
DRILL HOLE LOCATION: Adjacent to fence at end of Yosemite Ave. extension on southern canal bank

DATE: October 11, 1989
PREPARED BY: S. Richardson, Reg. Geol. #4684
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Foggy and cool

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
MW-4-3	0-12		0	2"	<1	80	20	black	Silty Sand (SM); with gravel (rounded); well graded, non-plastic, moist, soft, organic sewer odor, black organic stain, water at 4'
	12-25		0	1"	<1	-	100	black	Clay (OL); with gravel (rounded), medium plasticity, wet, soft, organic sewer odor, black stain, mud cuttings to surface

* Type of PID utilized: Photovac TIP 1, Serial No: 0874300, Calibrated to: 60 ppm, Number of background samples taken: 3, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF MONITORING WELL

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: 8" hollow-stem auger
DRILLED BY: HEW Drilling Company

DRILL HOLE NO.: MW-5
DRILL HOLE LOCATION: 90' northerly on the western side of the fenceline corner at the end of the Wallace Ave. extension

DATE: October 11, 1989
PREPARED BY: S. Richardson, Reg. Geol. #4684
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
	0-1		0	2"	20	70	10	light brown	Gravelly Sand (SW); well graded, angular, non-plastic, dry, dense, no odor, no stain
MW-5-5	1-6		5	2"	20	70	10	brown	Gravelly Sand (SW); with brick debris, well graded, angular, non-plastic, moist, dense, no odor, no stain Blow count = 5, 7, 9
	6-8		10	3"	20	60	20	red	Gravelly Sand (SW); with silt, well graded, angular, non-plastic, moist, dense, no odor, red stain from brick debris
MW-5-9	9-12		10	2"	20	70	10	dark brown	Gravelly Sand (SW); with wood debris and brick fragments, well graded, angular, non-plastic, wet, dense, no odor, slight red stain and dark organic stain Blow count = 6, 4, 4
	12-30		5	1"	20	50	30	dark brown	Silty Sand (SM); with gravel and wood debris, well graded, angular, non-plastic, wet, dense, organic sewer odor, organic stain

* Type of PID utilized: Photovac TIP 1, Serial No: 0874300, Calibrated to: 60 ppm, Number of background samples taken: 3, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF MONITORING WELL

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: 8" hollow-stem auger
DRILLED BY: HEW Drilling Company

DRILL HOLE NO.: MW-6
DRILL HOLE LOCATION: 100' southerly along extension of Wallace Ave. adjacent to fenceline bordering the canal

DATE: October 11, 1989
PREPARED BY: S. Richardson, Reg. Geol. #4684
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
MW-6-3	0-8		0	2"	20	20	60	brown	Gravelly Silt (ML); with sand,clay and cultural debris, angular, low plasticity, moist, stiff, no odor, black stain Blow count = 4, 6, 6
MW-6-8	8-15		0	1"	10	40	50	dark brown	Sandy Silt (ML); with gravel (angular), clay and brick debris, angular, non-plastic, wet, stiff no odor, no stain Blow count = 2, 1, 5
	15-30		0	1/4"	10	30	60	dark gray	Sandy Silt (ML); with gravel (rounded), medium plasticity, wet, soft, no odor, gray organic stain, mud cuttings to surface

* Type of PID utilized: Photovac TIP 1, Serial No: 0874300, Calibrated to: 60 ppm, Number of background samples taken: 3, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: hand auger/flight auger
DRILLED BY: R. Ellis

DRILL HOLE NO.: BH-1
DRILL HOLE LOCATION: East boundry line, 200' south of MW-1

DATE: October 10, 1989
PREPARED BY: R. Ellis
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear and warm

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
BH-1-2	0-3		0	1"	-	20	80	dark brown	Sandy Silt (ML); very fine grained, with concrete and red tile debris, very low plasticity, dry, no odor, no stain
BH-1-6	3-11		0	1/2"	5	55	40	brown gray	Silty Sand (SM); fine grained, with gravel, dense, low plasticity, moist, no odor, no stain
									Ground water at 11'

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: hand auger/flight auger
DRILLED BY: R. Ellis

DRILL HOLE NO.: BH-2
DRILL HOLE LOCATION: West of Griffth Rd., 170' north of canal

DATE: October 10, 1989
PREPARED BY: R. Ellis
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear and warm

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
BH-2-2	0-3		0	1"	10	20	70	light brown	Sandy Silt (ML); very fine grained, with gravel and some concrete and wood debris, well graded, non-plastic, dry, no odor, no stain
BH-2-5	3-6		0	1/2"	5	20	75	brown	Silty Sand (SM); fine grained, with gravel, medium dense, low plasticity, moist, no odor, no stain
									Ground water at 6'

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: hand auger/flight auger
DRILLED BY: R. Ellis

DRILL HOLE NO.: BH-3
DRILL HOLE LOCATION: North of canal, 100' west of Griffith Rd.

DATE: October 10-11, 1989
PREPARED BY: R. Ellis
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear and warm

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
BH-3-1	0-2		0	1/2"	15	15	70	light brown	Sandy Silt (ML); very fine grained, with concrete debris, well graded, non-plastic, dry, no odor, no stain
BH-3-4	2-4		15	1/2"	10	30	60	dark brown	Sandy Silt (ML); with gravel, non-plastic, moist, stiff, no odor, no stain Blow count = 25, 36, 11
									Ground water at 5'

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: hand auger/flight auger
DRILLED BY: R. Ellis/HEW Drilling Company

DRILL HOLE NO.: BH-4
DRILL HOLE LOCATION: North of canal, 100' east of western boundary

DATE: October 10-11, 1989
PREPARED BY: R. Ellis
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear and warm

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
BH-4-1	0-1.5		0	1/2"	5	35	60	tan	Sandy Silt (ML); very fine grained, with concrete, crushed limestone, asphalt and glass debris, low plasticity, moist, no odor, no stain
	1.5-2		0	3/4"	5	40	55	dark brown	Sandy Silt (ML); very fine grained, with concrete debris, non-plastic, moist, no odor, no stain
BH-4-4	2-5		12	1/2"	10	60	30	dark brown	Silty Sand (SM); with gravel (angular) well graded, dense, low plasticity, moist, no odor, no stain
									Ground water at 5'

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: hand auger
DRILLED BY: R. Ellis

DRILL HOLE NO.: BH-5
DRILL HOLE LOCATION: Northwest corner of canal

DATE: October 10, 1989
PREPARED BY: R. Ellis
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear, warm and windy

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
	0-0.5		0	3/4"	5	60	35	light brown	Silty Sand (SM); very fine grained, with gravel, concrete and crushed rock debris, poorly graded, loose, moist, no odor, no stain
BH-5-3	0.5-3		0	<1/8"	-	30	70	dark brown-black	Silty Clay (OL); with very fine sand, organic, medium plasticity, moist to wet, soft, organic decay odor, no stain
									Ground water at 3'

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: hand auger
DRILLED BY: R. Ellis

DRILL HOLE NO.: BH-6
DRILL HOLE LOCATION: South of canal across from Hawes St.

DATE: October 10, 1989
PREPARED BY: R. Ellis
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear, cool and windy

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
	0-1		-	-	-	-	-	-	Asphalt
BH-6-2	1-2		0	<1/8"	-	20	80	red brown	Fat Clay (CH); medium plasticity, wet, soft, slight organic odor, no stain

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: hand auger
DRILLED BY: R. Ellis

DRILL HOLE NO.: BH-7
DRILL HOLE LOCATION: South of canal, 200' west of eastern boundary

DATE: October 10, 1989
PREPARED BY: R. Ellis
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear, cool and windy

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
	0-1.5		0	<1/8"	-	20	80	light brown	Sandy Silt (ML); very fine grained, non-plastic, dry, medium stiff, no odor, no stain
BH-7-3	1.5-4		0	3/4"	15	20	65	brown	Gravelly Silt (ML); coarse grained, with gravel and red brick debris, well graded, dense, medium plasticity, moist, no odor, no stain
BH-7-5	4-5		0	1 1/2"	15	20	65	brown	Gravelly Silt (ML); coarse grained, with gravel, large chunks of concrete and brick debris, well graded, dense, medium plasticity, moist, no odor, no stain
									Auger refusal at 5' due to debris

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: flight auger
DRILLED BY: HEW Drilling Company

DRILL HOLE NO.: BH-8
DRILL HOLE LOCATION: Near SV # C-11

DATE: October 10, 1989
PREPARED BY: S. Richarson, Reg. Geol. #4684
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear, cool and windy

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
	0-3		-	-	30	10	60	light brown	Gravelly Silt (ML); with wood and brick debris, hard, non-plastic, dry-moist, medium stiff
BH-8-5	3-7.5		0	1/4"	<1	90	10	dark brown	Sand (SP); with silt and gravel, poorly graded, dense, non-plastic, moist, no odor, no stain Blow count = 10, 13, 31
BH-8-8	7.5-11		0	-	-	20	80	light brown	Silt (ML); with sand, dense, non-plastic, moist, no odor, no stain Blow count = 6, 5, 4
									Ground water ar 11'

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: flight auger
DRILLED BY: HEW Drilling Company

DRILL HOLE NO.: BH-9
DRILL HOLE LOCATION: Near SV #7

DATE: October 10, 1989
PREPARED BY: S. Richarson, Reg. Geol. #4684
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear, cool and windy

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. *STRATIFIED OR MASSIVE*), *PLASTICITY, DRY*, STRENGTH, ODOR.
	0-2		0	2"	30	10	60	brown	*Gravelly Silt (ML); with sand and concrete debris, non-plastic, dry-moist, hard, no odor, no stain*
BH-9-5	2-7		0	1/4"	10	20	70	brown	Silt (ML); with sand, gravel and brick debris, low plasicity, moist, hard, no odor, no stain Blow count = 2, 11, 16
BH-9-8	7-8		0	1/4"	30	10	60	brown	Gravelly Silt (ML); with sand, brick and concrete debris, low plasticity, moist, hard, no odor, no stain Blow count = 6, 4, 4

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: flight auger
DRILLED BY: HEW Drilling Company

DRILL HOLE NO.: BH-10
DRILL HOLE LOCATION: 30' southerly and 10' westerly from the southwest corner of Griffith St. and Thomas Ave.

DATE: October 10, 1989
PREPARED BY: S. Richardson, Reg. Geol. # 4684
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear, windy and cool

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
	0-0.5		0	6"	100	-	-	grey	Gravel (GP); with concrete debris, poorly graded, angular, hard, dry, no odor, no stain
	0.5-3		0	1"	10	40	50	brown	Sandy Silt (ML); with gravel, well graded, non-plastic, moist, stiff, no odor, no stain
	3-4		0	4"	-	-	-	grey	Concrete rubble
BH-10-5	4-11.5		0	2"	80	10	10	light brown	Gravel (GP); with concrete rubble, sand and silt, poorly graded, angular, non-plastic, dry, hard, no odor, no stain
									Auger refusal at 14' on probable bedrock

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 2, Results of background samples: 0, 9

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: hand auger
DRILLED BY: M. Fahan, Reg. Geol. #4279

DRILL HOLE NO.: BH-11
DRILL HOLE LOCATION: 30' south of SV #C-3

DATE: October 11, 1989
PREPARED BY: M. Fahan, Reg. Geol. #4279
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Foggy

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
BH-11-1	0-2		0	-	-	-	100	reddish brown	Sand (SW); medium-fine grained, with few pebbles, well sorted, no odor, no stain
	2		0	1"	10	80	10	grey brown	Sand (SW); with gravel, silt and concrete debris, moist, very hard, no odor, no stain
									Auger refusal at 2' due to concrete debris

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: hand auger
DRILLED BY: M. Fahan, Reg. Geol. #4279

DRILL HOLE NO.: BH-12
DRILL HOLE LOCATION: North of eastern canal end

DATE: October 11, 1989
PREPARED BY: M. Fahan, Reg. Geol. #4279
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Cloudy

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
BH-12-1	0-2		0	-	-	100	-	reddish brown	Sand (SP); medium-fine grained, well sorted, moist, no odor, no stain
BH-12-4	2-4		0	1"	10	85	5	grey	Gravelly Sand (SW); medium grained, with gravel, silt and concrete rubble, well graded, moist, no odor, no stain
									Penetration stopped at 4' due to debris

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: hand auger
DRILLED BY: R. Ellis

DRILL HOLE NO.: BH-13
DRILL HOLE LOCATION: North of canal, 300' west of eastern boundary

DATE: October 11, 1989
PREPARED BY: R. Ellis
CHECKED BY: M. Fahan, Reg. Geol. #4279.
WEATHER CONDITIONS: Cloudy and cool

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
BH-13-1	0-3.5		0	1/4"	5	70	25	red brown	Silty Sand (SM); fine grained, poorly graded, low plasticity, moist, no odor, no stain
BH-13-5	3.5-5		0	1/2"	5	10	85	brown black	Silty Clay (CL); with wood and brick debris, medium plasticity, moist-wet, stiff, no odor, no stain
									Ground water at 5'

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: hand auger
DRILLED BY: R. Ellis

DRILL HOLE NO.: BH-14
DRILL HOLE LOCATION: 100' south of Underwood Ave., 200' west of Griffith Rd.

DATE: October 11, 1989
PREPARED BY: R. Ellis
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear and warm

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
BH-14-1	0-4		0	3"	10	10	80	dark brown	Silty Clay (CL); with crushed rock debris, stiff, low plasticity, moist, no odor, no stain
BH-14-6	4-12		22	1"	10	80	10	yellow brown	Sand (SP); with gravel (angular), silt, brick and concrete debris, poorly graded, dense, low plasticity, moist, no odor, no stain Blow count = 12, 10, 8
									Ground water at 12'

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: flight auger
DRILLED BY: HEW Drilling Company

DRILL HOLE NO.: BH-15
DRILL HOLE LOCATION: 300' west of Griffith St. and 200' south of Underwood Ave.

DATE: October 11, 1989
PREPARED BY: R. Ellis
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear, windy and cool

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
BH-15-1	0-3		0	6"	80	20	-	grey	Gravel (GP); with concrete debris, poorly graded, angular, hard, dry, no odor, no stain
	3-5		0	1"	20	20	60	light brown	Sandy Silt (ML); with gravel, low plasticity, moist, stiff, no odor, no stain
BH-15-6	5-7		350-700	2"	20	50	30	brown green	Silty Sand (SM); fine grained, well graded, low plasticity, moist, dense, strong gasoline odor, green staining
BH-15-10	7-14		600	1/4"	80	10	10	grey green	Silty Clay (CL); with sand and gravel, medium plasticity, moist, stiff, strong gasoline odor, green staining
									Ground water at 14'

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 2, Results of background samples: 0, 9

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: flight auger
DRILLED BY: HEW Drilling Company

DRILL HOLE NO.: BH-16
DRILL HOLE LOCATION: 100' west of Griffith Rd. and 200' south of Underwood Ave.

DATE: October 11, 1989
PREPARED BY: S. Richardson, Reg. Geol. #4684
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear, windy and cool

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
BH-16-1	0-4		0	1"	20	-	80	light brown	Silt (ML); with gravel (angular), non-plastic, dry, stiff, no odor, no stain
BH-16-6	4-7		10	1/2"	10	30	60	light brown	Sandy Silt (ML); with gravel (angular), non-plastic, dry, stiff, no odor, no stain Blow count = 15, 17, 11
									Auger refusal at 7' due to concrete or steel

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: flight auger
DRILLED BY: HEW Drilling Company

DRILL HOLE NO.: BH-17
DRILL HOLE LOCATION: 200' west of Griffith Rd., 200' north of canal

DATE: October 11, 1989
PREPARED BY: S. Richardson, Reg. Geol. #4684
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear, windy and cool

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
BH-17-1	0-2		0	1"	10	60	30	brown	Silty Sand (SM); with gravel (angular), well graded, dense, non-plastic, dry, no odor, no stain
BH-17-6	2-7		0	1/2"	10	20	70	dark brown	Silty Clay (CL); with sand and gravel (rounded), low plasticity, moist, stiff, no odor, no stain Blow count = 6, 4, 4
	7-11		0	2"	20	70	10	dark brown	Sand (SW); with gravel (angular) and silt, well graded, dense, non-plastic, moist, no odor, no stain
									Ground water at 10'

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: flight auger
DRILLED BY: HEW Drilling Company

DRILL HOLE NO.: BH-18
DRILL HOLE LOCATION: Southwest corner of Griffith Rd. and Underwood Ave.

DATE: October 11, 1989
PREPARED BY: S. Richardson, Reg. Geol. #4684
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. *STRATIFIED OR* MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
BH-18-1	0-3		0	3"	80	20	-	dark brown	Gravel (GP); with sand, concrete and brick debris, poorly graded, angular, non-plastic, moist, hard, no odor, no stain Blow count = 12, 24, 23
	3-5		0	1/4"	20	80	-	light brown	Sand (SP); with gravel (angular), poorly graded, dense, non-plastic, moist, no odor, no stain
BH-18-6	5-6		0	2"	80	20	-	light brown	Gravel (GP); with sand, poorly graded, angular, non-plastic, moist, hard, no odor, no stain
									Auger refusal on bedrock at 6'

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: flight auger
DRILLED BY: HEW Drilling Company

DRILL HOLE NO.: BH-19
DRILL HOLE LOCATION: 350' west of Griffith Rd. along Underwood Ave.

DATE: October 11, 1989
PREPARED BY: S. Richardson, Reg. Geol. #4684
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Clear

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
BH-19-1	0-2		0	2"	60	20	20	yellow brown	Gravel (GC); with sand, clay, concrete and brick debris, hard, non-plastic, moist-dry, no odor, no stain Blow count = 5, 8, 22
BH-19-6	2-6		0	1"	60	30	10	brown	Sandy Gravel (GP); with clay, concrete, brick and cultural debris, angular, hard, non-plastic, moist, no odor, no stain Blow count = 4, 13, 12
									Auger refusal on bedrock at 6'

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

LOG OF SOIL BORING

CLIENT: California Department of Parks and Recreation
PROJECT: Candlestick Point
DRILLING METHOD: flight auger
DRILLED BY: HEW Drilling Company

DRILL HOLE NO.: BH-20
DRILL HOLE LOCATION: 200' east of Griffith Rd. along Van Dyke

DATE: October 11, 1989
PREPARED BY: R. Ellis
CHECKED BY: M. Fahan, Reg. Geol. #4279
WEATHER CONDITIONS: Cloudy and cool

IDENTIFICATION				GRADATION					DESCRIPTION AND SOIL CLASSIFICATION
SAMPLE NUMBER	DEPTH (Ft.)	GRAPHIC LOG (Use Group Symbol)	PID (ppm)*	MAXIMUM SIZE	GRAVEL (% > #4)	SAND (% #4-#200)	FINES (% <#200)	COLOR (Wet State)	1. DESCRIPTIVE CLASSIFICATION 2. PARTICLE SIZE, SHAPE, AND GRADATION 3. CONSISTENCY, ELASTICITY 4. REACTION TO SHAKING, DRY STRENGTH, ETC. NAME: GRADATION, ANGULARITY, STRUCTURE, (i.e. STRATIFIED OR MASSIVE), PLASTICITY, DRY, STRENGTH, ODOR.
BH-20-1	0-1		0	1 1/2"	20	20	60	light brown	Gravelly Silt (ML); angular, with concrete debris, poorly graded, dense, non-plastic, dry, no odor, no stain
	1-3.5		0	1/8"	-	-	100	red brown	Sand (SP); fine grained, poorly graded, dense, dry, no odor, no stain
BH-20-6	3.5-11		0	1/2"	10	20	70	light brown	Sandy Silt (ML); with gravel (angular), brick and concrete debris, poorly graded, low plasticity, moist, stiff, no odor, no stain

* Type of PID utilized: Hnu Model PI 101, Serial No: 601286, Calibrated to: 60 ppm, Number of background samples taken: 1, Results of background samples: 0

SEE PLATE A-1 FOR LEGEND TO LOGS

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISION			GROUP SYMBOL	DESCRIPTION	GRAPHIC LOG
COARSE GRAINED SOILS OVER 50% BY WEIGHT COARSER THAN NO. 200 SIEVE SIZE	GRAVELLY SOILS OVER 50% OF COARSE FRACTION LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELLY SOILS LITTLE OR NO FINES	GW	Well graded gravels or gravel-sand mixtures	
			GP	Poorly graded gravels or gravel-sand mixtures	
		GRAVELLY SOILS WITH FINES OVER 12% FINES	GM	Silty Gravels or poorly graded gravel-sand-silt mixtures	
			GC	Clayey gravels or poorly graded gravel-sand-clay mixutres	
	SANDY SOILS OVER 50% OF COARSE FRACTION SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDY SOILS LITTLE OR NO FINES	SW	Well graded sands or gravelly sands	
			SP	Poorly graded sands or gravelly sands	
		SANDY SOILS WITH FINES OVER 12% FINES	SM	Silty sands or poorly graded sand - silt mixtures	
			SC	Clayey sands or poorly graded sand - clay mixtures	
FINE GRAINED SOILS OVER 50% BY WEIGHT FINER THAN NO. 200 SIEVE SIZE	SILTY AND CLAYEY SOILS LIQUID LIMIT LESS THAN 50		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity	
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clay silty clays, or lean clays	
			OL	Organic clays or organic silty clays or low plasticity	
	SILTY AND CLAYEY SOILS LIQUID LIMIT GREATER THAN 50		MH	Inorganic silts, micaceous or diato-maceous fine sandy or silty soils, or elastic silts	
			CH	Inorganic clays of high plasticity, or fat clays	
			OH	Organic clays or medium to high plasticity, or organic silts	
HIGHLY ORGANIC SOILS			PI	Peat or other highly organic soil	

SAMPLE - Sample types are indicated as follows:

Undisturbed

Disturbed

Unsuccessful Attempt

Standard Penetration

* = SAMPLER TYPES
M = Modified California
S = Shelby Tube (Pushed)
PT = Pitcher Barrel
P = Hydraulic Piston

Water Inflow

Water Level

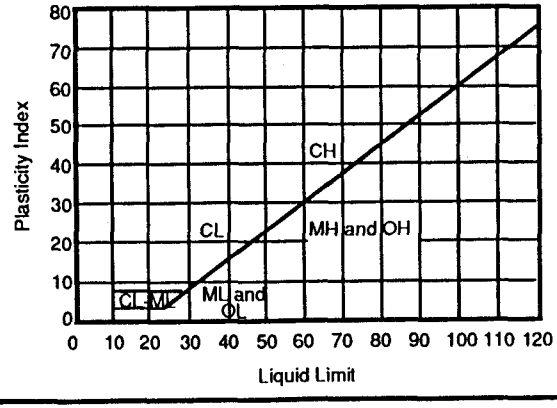
BLOW COUNT - The number of blows required to drive the indicated sampler the last 12 inches of an 18 inch drive. The notation 100/9 indicates only 9 inches of penetration were achieved in 100 blows. Hammer weights and drop heights are shown as indicated below:

Symbol	Driving Weight (pounds)	Drop Height (inches)
7		
(3)		
[6]		
④		
[5]		
6		

Heavy Caving

Light Caving

PLASTICITY CHART
Used for Classification of Fine Grained Soils



ADDITIONAL TESTS -

UC : Unconfined Compression	WP : Water Pressure	DS : Direct Shear
TD : Triaxial Compression, Drained	PMt : Pressuremeter	PM : Permeability
TU : Triaxial Compression, Undrained	SE : Sand Equivalent	EX : Expansion
TDy : Triaxial Compression, Dynamic	GJ : Goodman Jack	RS : Resistivity
PH : Hydrogen Ion Concentration	SP : Specific Gravity	S : Swell
PA : Paleontologic, Analysis	CP : Compaction	CL : Chloride
GS : Grain Size Distribution	C : Consolidation	SU : Sulphate

PLATE A-1

HOLGUIN,
FAHAN
& ASSOCIATES, INC.

ENVIRONMENTAL MANAGEMENT CONSULTANTS

ATTACHMENT 3

GAS CHROMATOGRAPH DATA

CANDLESTICK POINT *SOIL* VAPOR DATA: GC READINGS REFERENCED TO 100 PPM HEXANE

FIELD BLANK October 10,1989								
PEAK AREAS	TOTAL AREA	GAIN	SPL VOL. (1ML)	AREA/PPM				
32.5	2527.7	10	0.5	1011.08				
20.1								
563.3								
1700.0								
93.0								
10.5								
89.6								
18.7								
C-1								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
38.8	6758.3	10	0.5	2703.32	1011.08	1692.24	182	9.298021978
103.9								
936.1								
5200								
361.3								
92								
26.2								
C-2								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
27.4	4740.9	10	0.5	1896.36	1011.08	885.28	182	4.864175824
19.9								
19.2								
724.2								
3700								
114.3								
126.3								
9.6								
C-3								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
43.1	17070.8	10	0.5	6828.32	1011.08	5817.24	182	31.96285714
990.8								
4000								
2000								
4400								
3000								
543.6								
1100								
841.3								
82.4								
31.9								
10.1								
5.2								
13.8								
8.6								
C-4								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
43.1	3109.8	10	0.5	1243.92	1011.08	232.84	182	1.279340659
655.2								
1900								
70.4								
86								
13.1								
196.3								
145.7								
C-5								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
322.8	3678.2	10	0.5	1471.28	1011.08	460.2	182	2.528571429
825.2								
2300								
112.1								
94								
18.5								
5.6								
C-6								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
445.9	3688.2	10	0.5	1475.28	1011.08	464.2	182	2.550549451
781.9								
2300								
73.2								
87.2								

CANDLESTICK POINT SOIL VAPOR DATA: GC READINGS REFERENCED TO 100 PPM HEXANE

C-7								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
699.2	5546.8	10	0.5	2218.72	1011.08	1207.64	182	6.635384615
806.7								
2300								
97.5								
38.9								
23.4								
FIELD BLANK OCTOBER 10,1989								
PEAK AREAS	TOTAL AREA	GAIN	SPL VOL. (1ML)	AREA/PPM				
44.1	1581.1	10	0.5	632.44				
22.1								
267.3								
1100.0								
68.0								
6.4								
73.2								
C-8								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
72.3	2829.3	10	0.5	1131.72	1011.08	120.64	182	0.662857143
248.2								
621.8								
1500								
79.8								
206.8								
62.8								
27.3								
10.3								
C-11								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
61.2	2562.8	10	0.5	1025.12	632.44	392.68	182	2.157582418
163.1								
777.3								
1500								
61.2								
C-13								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
18.8	729.6	10	0.5	291.84	632.44	-340.6	182	-1.871428571
89.6								
456.4								
110.8								
54								
FIELD BLANK OCTOBER 11, 1989								
PEAK AREAS	TOTAL AREA	GAIN	SPL VOL. (1ML)	AREA/PPM				
581.0	581	10	0.5	232.4				
C-19								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
534.5	534.5	10	0.5	213.8	232.4	-18.6	182	-0.102197802
C-20								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
1300	2056.7	10	0.5	822.68	232.4	590.28	182	3.243296703
756.7								
C-25								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
564.1	828.1	10	0.5	331.24	232.4	98.84	182	0.543076923
264								
C-30								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
990.9	990.9	10	0.5	396.36	232.4	163.96	182	0.900879121
FIELD BLANK OCTOBER 11, 1989								
PEAK AREAS	TOTAL AREA	GAIN	SPL VOL. (1ML)	AREA/PPM				
307.5	913.6	10	0.5	365.44				
194.1								
348.3								
63.7								

CANDLESTICK POINT SOIL VAPOR DATA: GC READINGS REFERENCED TO 100 PPM HEXANE

C-36								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
100	1858.4	10	0.5	743.36	365.44	377.92	182	2.076483516
1700								
58.4								
C-40								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
137	344.7	10	0.5	137.88	365.44	-227.56	182	-1.25032967
156.2								
51.5								
FIELD BLANK OCTOBER 11, 1989								
PEAK AREAS	TOTAL AREA	GAIN	SPL VOL. (1ML)	AREA/PPM				
84.1	84.1	10	0.5	33.64				
C-43								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
212.3	1773.6	10	0.5	709.44	33.64	675.8	182	3.713186813
342.2								
19.1								
1200								
C-48								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
172.9	192.1	10	0.5	76.84	33.64	43.2	182	0.237362637
19.2								
FIELD BLANK OCTOBER 12, 1989								
PEAK AREAS	TOTAL AREA	GAIN	SPL VOL. (1ML)	AREA/PPM				
507.1	507.1	10	0.5	202.84				
C-54								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
539.9	539.9	10	0.5	215.96	202.84	13.12	182	0.072087912
C-55								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
746.6	794.2	10	0.5	317.68	202.84	114.84	182	0.630989011
47.6								
C-59								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
790.4	790.4	10	0.5	316.16	202.84	113.32	182	0.622637363
C-63								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
729.1	729.1	10	0.5	291.64	202.84	88.8	182	0.487912088
C-67								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
728.4	728.4	10	0.5	291.36	202.84	88.52	182	0.486373626
FIELD BLANK OCTOBER 12, 1989								
PEAK AREAS	TOTAL AREA	GAIN	SPL VOL. (1ML)	AREA/PPM				
385.2	385.2	10	0.5	154.08				
C-72								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
61.7	811.3	10	0.5	324.52	154.08	170.44	182	0.936483516
717.3								
32.3								
C-78								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
555.3	578.6	10	0.5	231.44	154.08	77.36	182	0.425054945
23.3								
C-82								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
42.3	754.2	10	0.5	301.68	154.08	147.6	182	0.810989011
696.3								
15.6								

CANDLESTICK POINT SOIL VAPOR DATA: GC READINGS REFERENCED TO 100 PPM HEXANE

C-87								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
28.7	564.3	10	0.5	225.72	154.08	71.64	182	0.393626374
535.6								
C-90								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
220.9	936.2	10	0.5	374.48	154.08	220.4	182	1.210989011
715.3								
FIELD BLANK OCTOBER 13, 1989								
PEAK AREAS	TOTAL AREA	GAIN	SPL VOL. (1ML)	AREA/PPM				
86.9	895.3	10	0.5	358.12				
808.4								
C-93								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
909.3	909.3	10	0.5	363.72	358.12	5.6	182	0.030769231
C-94								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
868.2	868.2	10	0.5	347.28	358.12	-10.84	182	-0.05956044
C-95								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
970.5	970.5	10	0.5	388.2	358.12	30.08	182	0.165274725
C-96								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
77.3	924.1	10	0.5	369.64	358.12	11.52	182	0.063296703
846.8								
C-97								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
94.7	1081.6	10	0.5	432.64	358.12	74.52	182	0.409450549
986.9								
C-98								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
880.2	880.2	10	0.5	352.08	358.12	-6.04	182	-0.033186813
C-99								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
625.1	625.1	10	0.5	250.04	358.12	-108.08	182	-0.593846154
C-100								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
654.3	654.3	10	0.5	261.72	358.12	-96.4	182	-0.52967033
C-101								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
709.3	709.3	10	0.5	283.72	358.12	-74.4	182	-0.408791209
C-102								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
552.3	552.3	10	0.5	220.92	358.12	-137.2	182	-0.753846154
C-103								
PEAK AREAS	TOTAL AREAS	GAIN	SPL VOL. (1ML)	STANDARDIZED	MINUS FIELD BLANK	ACTUAL AREA	AREA/PPM	ACTUAL PPM
593.2	593.2	10	0.5	237.28	358.12	-120.84	182	-0.663956044

HOLGUIN,
FAHAN
& ASSOCIATES, INC.

ENVIRONMENTAL MANAGEMENT CONSULTANTS

ATTACHMENT 4

LABORATORY ANALYSIS RESULTS

ENSECO—CRL/Ventura
2810 Bunsen Ave. Unit A • Ventura, CA 93003
(805) 650-0546 • FAX: (805) 650-0756

Holguin & Associates, Inc.
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project: Candlestick Point
Dept of Park & Rec.

Sample #: 9289173201
Received: 10/16/89
Type: Liquid

Collector: Client
Sampling Date & Time: 10/13/89, 1515
Method: Not Specified

I.D.: GW-1

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead	EPA 200.7	2.3	mg/L	0.05
Nickel	EPA 200.7	0.34	mg/L	0.02
Copper	EPA 200.7	0.43	mg/L	0.05
Chromium, Total	EPA 200.7	0.18	mg/L	0.02
Arsenic	EPA 206.3	0.032	mg/L	0.005
Mercury	EPA 245.1	0.001	mg/L	0.001
Phenols, Total	EPA 420.2	ND <0.4	mg/L**	0.1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	2	mg/L	1
-EPA Method 608/8080-		Analyzed 10/20/89 *		
-EPA 608/8080 Extraction	EPA 3510/3520	Extracted 10/19/89		
Alpha-BHC	EPA 608	ND <0.5	ug/L	0.05
Beta-BHC	EPA 608	ND <0.5	ug/L	0.05
Delta-BHC	EPA 608	ND <0.5	ug/L	0.05
Gamma-BHC (Lindane)	EPA 608	ND <0.5	ug/L	0.05
Heptachlor	EPA 608	ND <0.5	ug/L	0.05
Aldrin	EPA 608	ND <0.5	ug/L	0.05
Heptachlor Epoxide	EPA 608	ND <0.05	ug/L	0.05
Endosulfan I	EPA 608	ND <0.05	ug/L	0.05
Dieldrin	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDE	EPA 608	ND <0.1	ug/L	0.1
Endrin	EPA 608	ND <0.1	ug/L	0.1
Endosulfan II	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDD	EPA 608	ND <0.1	ug/L	0.1
Endrin Aldehyde	EPA 608	ND <0.1	ug/L	0.1

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
The Report Cover Letter is an integral part of this report.

ENSECO—CRL/Ventura
2810 Bunsen Ave. Unit A • Ventura, CA 93003
(805) 650-0546 • FAX: (805) 650-0756

CONSTITUENT	METHOD	RESULT	UNIT	MDL
Endosulfan Sulfate	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDT	EPA 608	ND <0.1	ug/L	0.1
Methoxychlor	EPA 608	ND <0.5	ug/L	0.5
Endrin Ketone	EPA 608	ND <0.1	ug/L	0.1
Chlordane	EPA 608	ND <0.5	ug/L	0.5
Toxaphene	EPA 608	ND <1.0	ug/L	1
Aroclor - 1016	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1221	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1232	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1242	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1248	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1254	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1260	EPA 608	ND <0.5	ug/L	0.5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
The Report Cover Letter is an integral part of this report.

ENSECO—CRL/Ventura
2810 Bunsen Ave. Unit A • Ventura, CA 93003
(805) 650-0546 • FAX: (805) 650-0756

Enseco

Holguin & Associates, Inc.
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project: Candlestick Point
Dept of Park & Rec.

Sample #: 9289173205
Received: 10/16/89
Type: Sediment

Collector: Client
Sampling Date & Time: 10/13/89, 1430
Method: Not Specified

I.D.: GW-2

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead	EPA 239.2	ND <0.005	mg/L	0.005
Nickel	EPA 200.7	0.09	mg/L	0.02
Copper	EPA 200.7	ND <0.05	mg/L	0.05
Chromium, Total	EPA 218.2	0.013	mg/L	0.01
Arsenic	EPA 206.3	ND <0.005	mg/L	0.005
Mercury	EPA 245.1	ND <0.001	mg/L	0.001
Phenols, Total	EPA 420.2	ND <0.1	mg/L	0.1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	ND <1	mg/L	1
-EPA Method 608/8080-		Analyzed	10/20/89	
-EPA 608/8080 Extraction	EPA 3510/3520	Extracted	10/19/89	
Alpha-BHC	EPA 608	ND <0.05	ug/L	0.05
Beta-BHC	EPA 608	ND <0.05	ug/L	0.05
Delta-BHC	EPA 608	ND <0.05	ug/L	0.05
Gamma-BHC (Lindane)	EPA 608	ND <0.05	ug/L	0.05
Heptachlor	EPA 608	ND <0.05	ug/L	0.05
Aldrin	EPA 608	ND <0.05	ug/L	0.05
Heptachlor Epoxide	EPA 608	ND <0.05	ug/L	0.05
Endosulfan I	EPA 608	ND <0.05	ug/L	0.05
Dieldrin	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDE	EPA 608	ND <0.1	ug/L	0.1
Endrin	EPA 608	ND <0.1	ug/L	0.1
Endosulfan II	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDD	EPA 608	ND <0.1	ug/L	0.1
Endrin Aldehyde	EPA 608	ND <0.1	ug/L	0.1

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
The Report Cover Letter is an integral part of this report.

ENSECO—CRL/Ventura
2810 Bunsen Ave. Unit A • Ventura, CA 93003
(805) 650-0546 • FAX: (805) 650-0756

CONSTITUENT	METHOD	RESULT	UNIT	MDL
Endosulfan Sulfate	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDT	EPA 608	ND <0.1	ug/L	0.1
Methoxychlor	EPA 608	ND <0.5	ug/L	0.5
Endrin Ketone	EPA 608	ND <0.1	ug/L	0.1
Chlordane	EPA 608	ND <0.5	ug/L	0.5
Toxaphene	EPA 608	ND <1.0	ug/L	1
Aroclor - 1016	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1221	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1232	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1242	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1248	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1254	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1260	EPA 608	ND <0.5	ug/L	0.5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
The Report Cover Letter is an integral part of this report.

ENSECO—CRL/Ventura
2810 Bunsen Ave. Unit A • Ventura, CA 93003
(805) 650-0546 • FAX: (805) 650-0756

Enseco

Holguin & Associates, Inc.
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project: Candlestick Point
Dept of Park & Rec.

Sample #: 9289173209
Received: 10/16/89
Type: Liquid

Collector: Client
Sampling Date & Time: 10/13/89, 1450
Method: Not Specified

I.D.: GW-3

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead	EPA 239.2	0.020	mg/L	0.005
Nickel	EPA 200.7	0.46	mg/L	0.02
Copper	EPA 200.7	0.14	mg/L	0.05
Chromium, Total	EPA 200.7	0.34	mg/L	0.02
Arsenic	EPA 206.3	0.016	mg/L	0.005
Mercury	EPA 245.1	ND <0.001	mg/L	0.001
Phenols, Total	EPA 420.2	ND <0.1	mg/L	0.1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	ND <1	mg/L	1
-EPA Method 608/8080-		Analyzed	10/20/89	
-EPA 608/8080 Extraction	EPA 3510/3520	Extracted	10/19/89	
Alpha-BHC	EPA 608	ND <0.05	ug/L	0.05
Beta-BHC	EPA 608	ND <0.05	ug/L	0.05
Delta-BHC	EPA 608	ND <0.05	ug/L	0.05
Gamma-BHC (Lindane)	EPA 608	ND <0.05	ug/L	0.05
Heptachlor	EPA 608	ND <0.05	ug/L	0.05
Aldrin	EPA 608	ND <0.05	ug/L	0.05
Heptachlor Epoxide	EPA 608	ND <0.05	ug/L	0.05
Endosulfan I	EPA 608	ND <0.05	ug/L	0.05
Dieldrin	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDE	EPA 608	ND <0.1	ug/L	0.1
Endrin	EPA 608	ND <0.1	ug/L	0.1
Endosulfan II	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDD	EPA 608	ND <0.1	ug/L	0.1
Endrin Aldehyde	EPA 608	ND <0.1	ug/L	0.1

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ENSECO—CRL/Ventura
2810 Bunsen Ave. Unit A • Ventura, CA 93003
(805) 650-0546 • FAX: (805) 650-0756

CONSTITUENT	METHOD	RESULT	UNIT	MDL
Endosulfan Sulfate	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDT	EPA 608	ND <0.1	ug/L	0.1
Methoxychlor	EPA 608	ND <0.5	ug/L	0.5
Endrin Ketone	EPA 608	ND <0.1	ug/L	0.1
Chlordane	EPA 608	ND <0.5	ug/L	0.5
Toxaphene	EPA 608	ND <1.0	ug/L	1
Aroclor - 1016	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1221	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1232	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1242	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1248	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1254	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1260	EPA 608	ND <0.5	ug/L	0.5

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ENSECO—CRL/Ventura
2810 Bunsen Ave. Unit A • Ventura, CA 93003
(805) 650-0546 • FAX: (805) 650-0756

Holguin & Associates, Inc. 11/15/89
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173213
Received: 10/16/89
Type: Liquid

Collector: Client
Sampling Date & Time: 10/12/89, 1615
Method: Not Specified

I.D.: GW-4

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead	EPA 200.7	0.20	mg/L	0.05
Nickel	EPA 200.7	0.19	mg/L	0.02
Copper	EPA 200.7	0.09	mg/L	0.05
Chromium, Total	EPA 200.7	0.09	mg/L	0.02
Arsenic	EPA 206.3	0.009	mg/L	0.005
Mercury	EPA 245.1	ND <0.001	mg/L	0.001
Phenols, Total	EPA 420.2	ND <0.4	mg/L**	0.1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	ND <1	mg/L	1
-EPA Method 608/8080-		Analyzed	10/20/89 *	
-EPA 608/8080 Extraction	EPA 3510/3520	Extracted	10/19/89	
Alpha-BHC	EPA 608	ND <0.5	ug/L	0.05
Beta-BHC	EPA 608	ND <0.5	ug/L	0.05
Delta-BHC	EPA 608	ND <0.5	ug/L	0.05
Gamma-BHC (Lindane)	EPA 608	ND <0.5	ug/L	0.05
Heptachlor	EPA 608	ND <0.5	ug/L	0.05
Aldrin	EPA 608	ND <0.5	ug/L	0.05
Heptachlor Epoxide	EPA 608	ND <0.05	ug/L	0.05
Endosulfan I	EPA 608	ND <0.05	ug/L	0.05
Dieldrin	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDE	EPA 608	ND <0.1	ug/L	0.1
Endrin	EPA 608	ND <0.1	ug/L	0.1
Endosulfan II	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDD	EPA 608	ND <0.1	ug/L	0.1
Endrin Aldehyde	EPA 608	ND <0.1	ug/L	0.1

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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CONSTITUENT	METHOD	RESULT	UNIT	MDL
Endosulfan Sulfate	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDT	EPA 608	ND <0.1	ug/L	0.1
Methoxychlor	EPA 608	ND <0.5	ug/L	0.5
Endrin Ketone	EPA 608	ND <0.1	ug/L	0.1
Chlordane	EPA 608	ND <0.5	ug/L	0.5
Toxaphene	EPA 608	ND <1.0	ug/L	1
Aroclor - 1016	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1221	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1232	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1242	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1248	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1254	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1260	EPA 608	ND <0.5	ug/L	0.5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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Enseco

Holguin & Associates, Inc.
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project: Candlestick Point
Dept of Park & Rec.

Sample #: 9289173217
Received: 10/16/89
Type: Liquid

Collector: Client
Sampling Date & Time: 10/13/89, 1340
Method: Not Specified

I.D.: GW-5

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead	EPA 239.2	ND <0.005	mg/L	0.005
Nickel	EPA 200.7	0.08	mg/L	0.02
Copper	EPA 200.7	ND <0.05	mg/L	0.05
Chromium, Total	EPA 218.2	0.019	mg/L	0.01
Arsenic	EPA 206.3	0.007	mg/L	0.005
Mercury	EPA 245.1	ND <0.001	mg/L	0.001
Phenols, Total	EPA 420.2	ND <0.1	mg/L	0.1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	1	mg/L	1
-EPA Method 608/8080-		Analyzed 10/20/89		
-EPA 608/8080 Extraction	EPA 3510/3520	Extracted 10/19/89		
Alpha-BHC	EPA 608	ND <0.05	ug/L	0.05
Beta-BHC	EPA 608	ND <0.05	ug/L	0.05
Delta-BHC	EPA 608	ND <0.05	ug/L	0.05
Gamma-BHC (Lindane)	EPA 608	ND <0.05	ug/L	0.05
Heptachlor	EPA 608	ND <0.05	ug/L	0.05
Aldrin	EPA 608	ND <0.05	ug/L	0.05
Heptachlor Epoxide	EPA 608	ND <0.05	ug/L	0.05
Endosulfan I	EPA 608	ND <0.05	ug/L	0.05
Dieldrin	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDE	EPA 608	ND <0.1	ug/L	0.1
Endrin	EPA 608	ND <0.1	ug/L	0.1
Endosulfan II	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDD	EPA 608	ND <0.1	ug/L	0.1
Endrin Aldehyde	EPA 608	ND <0.1	ug/L	0.1

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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CONSTITUENT	METHOD	RESULT	UNIT	MDL
Endosulfan Sulfate	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDT	EPA 608	ND <0.1	ug/L	0.1
Methoxychlor	EPA 608	ND <0.5	ug/L	0.5
Endrin Ketone	EPA 608	ND <0.1	ug/L	0.1
Chlordane	EPA 608	ND <0.5	ug/L	0.5
Toxaphene	EPA 608	ND <1.0	ug/L	1
Aroclor - 1016	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1221	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1232	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1242	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1248	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1254	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1260	EPA 608	ND <0.5	ug/L	0.5

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Enseco

Holguin & Associates, Inc.
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project: Candlestick Point
Dept of Park & Rec.

Sample #: 9289173221
Received: 10/16/89
Type: Sediment

Collector: Client
Sampling Date & Time: 10/13/89, 1315
Method: Not Specified

I.D.: GW-6

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead	EPA 239.2	0.020	mg/L	0.005
Nickel	EPA 200.7	0.29	mg/L	0.02
Copper	EPA 200.7	0.17	mg/L	0.05
Chromium, Total	EPA 200.7	0.06	mg/L	0.02
Arsenic	EPA 206.3	0.009	mg/L	0.005
Mercury	EPA 245.1	ND <0.001	mg/L	0.001
Phenols, Total	EPA 420.2	ND <0.1	mg/L	0.1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	ND <1	mg/L	1
-EPA Method 608/8080-		Analyzed	10/20/89	
-EPA 608/8080 Extraction	EPA 3510/3520	Extracted	10/19/89	
Alpha-BHC	EPA 608	ND <0.05	ug/L	0.05
Beta-BHC	EPA 608	ND <0.05	ug/L	0.05
Delta-BHC	EPA 608	ND <0.05	ug/L	0.05
Gamma-BHC (Lindane)	EPA 608	ND <0.05	ug/L	0.05
Heptachlor	EPA 608	ND <0.05	ug/L	0.05
Aldrin	EPA 608	ND <0.05	ug/L	0.05
Heptachlor Epoxide	EPA 608	ND <0.05	ug/L	0.05
Endosulfan I	EPA 608	ND <0.05	ug/L	0.05
Dieldrin	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDE	EPA 608	ND <0.1	ug/L	0.1
Endrin	EPA 608	ND <0.1	ug/L	0.1
Endosulfan II	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDD	EPA 608	ND <0.1	ug/L	0.1
Endrin Aldehyde	EPA 608	ND <0.1	ug/L	0.1

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CONSTITUENT	METHOD	RESULT	UNIT	MDL
Endosulfan Sulfate	EPA 608	ND <0.1	ug/L	0.1
4,4' - DDT	EPA 608	ND <0.1	ug/L	0.1
Methoxychlor	EPA 608	ND <0.5	ug/L	0.5
Endrin Ketone	EPA 608	ND <0.1	ug/L	0.1
Chlordane	EPA 608	ND <0.5	ug/L	0.5
Toxaphene	EPA 608	ND <1.0	ug/L	1
Aroclor - 1016	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1221	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1232	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1242	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1248	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1254	EPA 608	ND <0.5	ug/L	0.5
Aroclor - 1260	EPA 608	ND <0.5	ug/L	0.5

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Holguin & Associates, Inc. 11/15/89
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173225
Received: 10/16/89
Type: Liquid

Collector: Client
Sampling Date & Time: 10/13/89, 1845
Method: Not Specified

I.D.: SW-1

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead	EPA 239.2	ND <0.005	mg/L	0.005
Nickel	EPA 200.7	0.08	mg/L	0.02
Copper	EPA 200.7	ND <0.05	mg/L	0.05
Chromium, Total	EPA 218.2	0.021	mg/L	0.01
Arsenic	EPA 206.3	0.010	mg/L	0.005
Mercury	EPA 245.1	ND <0.001	mg/L	0.001
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	ND <1	mg/L	1

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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ENSECO—CRL/Ventura
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Holguin & Associates, Inc. 11/15/89
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173226
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: **/**/**, ****
Method: Composite

I.D.: CS-1 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	1300	mg/kg	1
Nickel	EPA 7520	180	mg/kg	1
Copper	EPA 7210	22	mg/kg	1
Chromium, Total	EPA 7190	41	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	98	mg/kg	5

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Enseco

Holguin & Associates, Inc.
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173227
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: **/**/**, ****
Method: Composite

I.D.: CS-2 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	420	mg/kg	1
Nickel	EPA 7520	37	mg/kg	1
Copper	EPA 7210	76	mg/kg	1
Chromium, Total	EPA 7190	250	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	1200	mg/kg	5

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Holguin & Associates, Inc.
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173228
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: **/**/**, ****
Method: Composite

I.D.: CS-3 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	29	mg/kg	1
Nickel	EPA 7520	21	mg/kg	1
Copper	EPA 7210	17	mg/kg	1
Chromium, Total	EPA 7190	27	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	68	mg/kg	5

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Holguin & Associates, Inc.
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project: Candlestick Point
Dept of Park & Rec.

Sample #: 9289173229
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: 10/11/89, 0615
Method: Composite

I.D.: CS-4 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	140	mg/kg	1
Nickel	EPA 7520	28	mg/kg	1
Copper	EPA 7210	34	mg/kg	1
Chromium, Total	EPA 7190	42	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	990	mg/kg	5

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(805) 650-0546 • FAX: (805) 650-0756

Holguin & Associates, Inc. 11/15/89
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173230
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: 10/11/89, 0630
Method: Composite

I.D.: CS-5 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	470	mg/kg	1
Nickel	EPA 7520	56	mg/kg	1
Copper	EPA 7210	110	mg/kg	1
Chromium, Total	EPA 7190	48	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	660	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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ENSECO—CRL/Ventura
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Holguin & Associates, Inc.
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173231
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: 10/11/89, 0645
Method: Composite

I.D.: CS-6 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	420	mg/kg	1
Nickel	EPA 7520	550	mg/kg	1
Copper	EPA 7210	140	mg/kg	1
Chromium, Total	EPA 7190	680	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	360	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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ENSECO—CRL/Ventura
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Holguin & Associates, Inc.
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project: Candlestick Point
Dept of Park & Rec.

Sample #: 9289173232
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: 10/11/89, 0710
Method: Composite

I.D.: CS-7 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	170	mg/kg	1
Nickel	EPA 7520	62	mg/kg	1
Copper	EPA 7210	170	mg/kg	1
Chromium, Total	EPA 7190	65	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	280	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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ENSECO—CRL/Ventura
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Holguin & Associates, Inc.
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project: Candlestick Point
Dept of Park & Rec.

Sample #: 9289173233
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: 10/13/89, 1720
Method: Composite

I.D.: CS-8 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	200	mg/kg	1
Nickel	EPA 7520	35	mg/kg	1
Copper	EPA 7210	95	mg/kg	1
Chromium, Total	EPA 7190	14	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	960	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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ENSECO—CRL/Ventura
2810 Bunsen Ave. Unit A • Ventura, CA 93003
(805) 650-0546 • FAX: (805) 650-0756

Holguin & Associates, Inc.
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173234
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: 10/13/89, 1700
Method: Composite

I.D.: CS-9 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	210	mg/kg	1
Nickel	EPA 7520	41	mg/kg	1
Copper	EPA 7210	74	mg/kg	1
Chromium, Total	EPA 7190	90	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	1300	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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ENSECO—CRL/Ventura
2810 Bunsen Ave. Unit A • Ventura, CA 93003
(805) 650-0546 • FAX: (805) 650-0756

Holguin & Associates, Inc. 11/15/89
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173235
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: 10/11/89, ****
Method: Composite

I.D.: MW-5 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	220	mg/kg	1
Nickel	EPA 7520	52	mg/kg	1
Copper	EPA 7210	31	mg/kg	1
Chromium, Total	EPA 7190	19	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	330	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project: Candlestick Point
Dept of Park & Rec.

Sample #: 9289173236
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: 10/11/89, ****
Method: Composite

I.D.: MW-6 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	49	mg/kg	1
Nickel	EPA 7520	50	mg/kg	1
Copper	EPA 7210	29	mg/kg	1
Chromium, Total	EPA 7190	39	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	570	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173237
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: **/**/**, ****
Method: Composite

I.D.: BH-1 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	100	mg/kg	1
Nickel	EPA 7520	31	mg/kg	1
Copper	EPA 7210	95	mg/kg	1
Chromium, Total	EPA 7190	17	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	600	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173238
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: **/**/**, ****
Method: Composite

I.D.: BH-2 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	550	mg/kg	1
Nickel	EPA 7520	520	mg/kg	1
Copper	EPA 7210	120	mg/kg	1
Chromium, Total	EPA 7190	110	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	190	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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Holguin & Associates, Inc. 11/15/89
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173239
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: **/**/**, ****
Method: Composite

I.D.: BH-3 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	230	mg/kg	1
Nickel	EPA 7520	480	mg/kg	1
Copper	EPA 7210	330	mg/kg	1
Chromium, Total	EPA 7190	86	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	260	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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Holguin & Associates, Inc.
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173240
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: **/**/**, ****
Method: Composite

I.D.: BH-4 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	120	mg/kg	1
Nickel	EPA 7520	140	mg/kg	1
Copper	EPA 7210	22	mg/kg	1
Chromium, Total	EPA 7190	33	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	2500	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project: Candlestick Point
Dept of Park & Rec.

Sample #: 9289173241
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: **/**/**, ****
Method: Composite

I.D.: BH-11 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	3	mg/kg	1
Nickel	EPA 7520	25	mg/kg	1
Copper	EPA 7210	4.6	mg/kg	1
Chromium, Total	EPA 7190	22	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	6	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173242
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: **/**/**, ****
Method: Composite

I.D.: BH-12 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	31	mg/kg	1
Nickel	EPA 7520	35	mg/kg	1
Copper	EPA 7210	13	mg/kg	1
Chromium, Total	EPA 7190	42	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	110	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173243
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: **/**/**, ****
Method: Composite

I.D.: BH-13 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	280	mg/kg	1
Nickel	EPA 7520	57	mg/kg	1
Copper	EPA 7210	78	mg/kg	1
Chromium, Total	EPA 7190	33	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	15	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173244
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: **/**/**, ****
Method: Composite

I.D.: BH-14 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	100	mg/kg	1
Nickel	EPA 7520	66	mg/kg	1
Copper	EPA 7210	40	mg/kg	1
Chromium, Total	EPA 7190	11	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	850	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project: Candlestick Point
Dept of Park & Rec.

Sample #: 9289173245
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: **/**/**, ****
Method: Composite

I.D.: BH-15 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	21	mg/kg	1
Nickel	EPA 7520	42	mg/kg	1
Copper	EPA 7210	19	mg/kg	1
Chromium, Total	EPA 7190	39	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	2800	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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11/15/89

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173246
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: **/**/**, ****
Method: Composite

I.D.: BH-16 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	35	mg/kg	1
Nickel	EPA 7520	590	mg/kg	1
Copper	EPA 7210	31	mg/kg	1
Chromium, Total	EPA 7190	170	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	1100	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173247
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: **/**/**, ****
Method: Composite

I.D.: BH-17 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	22	mg/kg	1
Nickel	EPA 7520	130	mg/kg	1
Copper	EPA 7210	700	mg/kg	1
Chromium, Total	EPA 7190	62	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	44	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173248
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: **/**/**, ****
Method: Composite

I.D.: BH-18 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	130	mg/kg	1
Nickel	EPA 7520	52	mg/kg	1
Copper	EPA 7210	31	mg/kg	1
Chromium, Total	EPA 7190	40	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	300	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
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Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173249
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: **/**/**, ****
Method: Composite

I.D.: BH-19 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	130	mg/kg	1
Nickel	EPA 7520	75	mg/kg	1
Copper	EPA 7210	42	mg/kg	1
Chromium, Total	EPA 7190	47	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	140	mg/kg	5

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
The Report Cover Letter is an integral part of this report.

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Holguin & Associates, Inc.
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/15/89

Attn: Steven Nailor
805/652/0219

Project:Candlestick Point
Dept of Park & Rec.

Sample #: 9289173250
Received: 10/16/89
Type: Soil

Collector: Client
Sampling Date & Time: 10/11/89, 1840
Method: Composite

I.D.: BH-20 (Composite)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Lead, Total	EPA 7420	25	mg/kg	1
Nickel	EPA 7520	1100	mg/kg	1
Copper	EPA 7210	16	mg/kg	1
Chromium, Total	EPA 7190	59	mg/kg	1
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	56	mg/kg	5

Reviewed

Approved

* Higher detection limits due to other interfering compounds

** Higher detection limits due to sample matrix

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
The Report Cover Letter is an integral part of this report.

Enseco - CRL / South Coast
7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 891-5917

November 6, 1989

ENSECO CRL VENTURA
2810 BUNSEN AVE., UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-001/032
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Project: (92891732) HOLGUIN & ASSOCIATES, INC.

Enclosed with this letter is the report on the chemical and physical analyses on the samples from ANALYSIS NO: G-8929208-001/032 shown above.

The samples were received by CRL in a chilled state, intact and with the chain-of-custody record attached.

Please note that ND( ) means not detected at the detection limit expressed within the parentheses.

Solid samples are reported on "as received" basis.

Reviewed

Approved

Enseco - CRL / South Coast
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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-001
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: LIQUID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-01) GW-1

Purgeable Organics, EPA 624

Units: ug/L

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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FAX: (714) 891-5917

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-002
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: LIQUID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-05) GW-2

Purgeable Organics, EPA 624

Units: ug/L

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-003
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: LIQUID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-09) GW-3

Purgeable Organics, EPA 624

Units: ug/L

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-004
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: LIQUID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-13) GW-4

Purgeable Organics, EPA 624

Units: ug/L

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-005
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: LIQUID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-17) GW-5

Purgeable Organics, EPA 624

Units: ug/L

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-006
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 26-OCT-1989
Sample Type: LIQUID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-21) GW-6

Purgeable Organics, EPA 624

Units: ug/L

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
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ATTN: MR. LEO RAAB

Analysis No.: G-8929208-007
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 26-OCT-1989
Sample Type: LIQUID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-25) SW-1

Purgeable Organics, EPA 624

Units: ug/L

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-008
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 24-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-26) CS-1 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
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ATTN: MR. LEO RAAB

Analysis No.: G-8929208-009
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-27) CS-2 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	160.	ND	10
Carbon Disulfide	52.	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	46.	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-010
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-28) CS-3 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-011
Date Sampled: 11-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-29) CS-4 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-012
Date Sampled: 11-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-30) CS-5 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	22.*	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

*The analytical results for Acetone should not be considered reliable unless the concentration in the sample exceeds five times the detection limit.

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ENSECO CRL VENTURA
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ATTN: MR. LEO RAAB

Analysis No.: G-8929208-013
Date Sampled: 11-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-31) CS-6 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	71.	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-014
Date Sampled: 11-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-32) CS-7 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-015
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-33) CS-8 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	9.	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-016
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-34) CS-9 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	27.*	ND	10
Carbon Disulfide	9.	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

*The analytical results for Acetone should not be considered reliable unless the concentration in the sample exceeds five times the detection limit.

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ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
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ATTN: MR. LEO RAAB

Analysis No.: G-8929208-017
Date Sampled: 11-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-35) MW-5 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	10.	ND	5
Styrene	ND	ND	5
Xylenes, Total	69.	ND	5

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ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
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ATTN: MR. LEO RAAB

Analysis No.: G-8929208-018
Date Sampled: 11-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-36) MW-6 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	5.	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	6.	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
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ATTN: MR. LEO RAAB

Analysis No.: G-8929208-019
Date Sampled: Not Supplied
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-37) BH-1 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10S
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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ENSECO CRL VENTURA
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ATTN: MR. LEO RAAB

Analysis No.: G-8929208-020
Date Sampled: Not Supplied
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-38) BH-2 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
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ATTN: MR. LEO RAAB

Analysis No.: G-8929208-021
Date Sampled: Not Supplied
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-39) BH-3 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
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ATTN: MR. LEO RAAB

Analysis No.: G-8929208-022
Date Sampled: Not Supplied
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-40) BH-4 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	13.*	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

*The analytical results for Acetone should not be considered reliable unless the concentration in the sample exceeds five times the detection limit.

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ENSECO CRL VENTURA
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ATTN: MR. LEO RAAB

Analysis No.: G-8929208-023
Date Sampled: Not Supplied
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-41) BH-11 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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ENSECO CRL VENTURA
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ATTN: MR. LEO RAAB

Analysis No.: G-8929208-024
Date Sampled: Not Supplied
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-42) BH-12 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	18.*	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	10.	ND	5

*The analytical results for Acetone should not be considered reliable unless the concentration in the sample exceeds five times the detection limit.

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2810 BUNSEN AVENUE, UNIT A
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ATTN: MR. LEO RAAB

Analysis No.: G-8929208-025
Date Sampled: Not Supplied
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-43) BH-13 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	15.*	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

*The analytical results for Acetone should not be considered reliable unless the concentration in the sample exceeds five times the detection limit.

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-026
Date Sampled: Not Supplied
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-44) BH-14 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-027
Date Sampled: Not Supplied
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-45) BH-15 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	2500
Bromomethane	ND	ND	2500
Vinyl Chloride	ND	ND	2500
Chloroethane	ND	ND	2500
Methylene Chloride	ND	ND	1200
Acetone	ND	ND	2500
Carbon Disulfide	ND	ND	1200
1,1-Dichloroethene	ND	ND	1200
1,1-Dichloroethane	ND	ND	1200
trans-1,2-Dichloroethene	ND	ND	1200
Chloroform	ND	ND	1200
1,2-Dichloroethane	ND	ND	1200
2-Butanone	ND	ND	2500
1,1,1-Trichloroethane	ND	ND	1200
Carbon Tetrachloride	ND	ND	1200
Vinyl Acetate	ND	ND	2500
Bromodichloromethane	ND	ND	1200
1,2-Dichloropropane	ND	ND	1200
trans-1,3-Dichloropropene	ND	ND	1200
Trichloroethene	ND	ND	1200
Dibromochloromethane	ND	ND	1200
1,1,2-Trichloroethane	ND	ND	1200
Benzene	ND	ND	1200
cis-1,3-Dichloropropene	ND	ND	1200
2-Chloroethylvinyl ether	ND	ND	2500
Bromoform	ND	ND	1200
4-Methyl-2-pentanone	ND	ND	2500
2-Hexanone	ND	ND	2500
Tetrachloroethene	ND	ND	1200
1,1,2,2-Tetrachloroethane	ND	ND	1200
Toluene	ND	ND	1200
Chlorobenzene	ND	ND	1200
Ethylbenzene	3,700.	ND	1200
Styrene	ND	ND	1200
Xylenes, Total	57,000.	ND	1200

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-028
Date Sampled: Not Supplied
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-46) BH-16 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-029
Date Sampled: Not Supplied
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-47) BH-17 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-030
Date Sampled: Not Supplied
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-48) BH-18 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-031
Date Sampled: Not Supplied
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-49) BH-19 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	9.*	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	7.	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

The analytical results for Methylene Chloride should not be considered reliable unless the concentration in the sample exceeds five times the detection limit.

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-032
Date Sampled: 11-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92891732-50) BH-20 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-008/032
Date Sampled: 13-OCT-1989
11-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Sample Type: SOLID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.

QA/QC Summary

Date	Parameter (Method)	QC Type	Average Spike Recovery	Acceptable Range	Relative Percent Difference	Acceptable Range
23-OCT-1989	1,1-DICHLOROETHENE (EPA 8240)	L	92	54-134	0.	25
25-OCT-1989	1,1-DICHLOROETHENE (EPA 8240)	L	104	54-134	0.	25
24-OCT-1989	1,1-DICHLOROETHENE (EPA 8240)	L	101	54-134	2.	25
25-OCT-1989	TRICHLOROETHENE (EPA 8240)	L	110	67-124	0.	21
23-OCT-1989	TRICHLOROETHENE (EPA 8240)	L	110	67-124	1.	21
24-OCT-1989	TRICHLOROETHENE (EPA 8240)	L	86	67-124	0.	21
23-OCT-1989	BENZENE (EPA 8240)	L	101	62-126	0.	24
25-OCT-1989	BENZENE (EPA 8240)	L	111	62-126	2.	24
24-OCT-1989	BENZENE (EPA 8240)	L	105	62-126	2.	24
25-OCT-1989	TOLUENE (EPA 8240)	L	104	66-126	0.	22
23-OCT-1989	TOLUENE (EPA 8240)	L	96	66-126	2.	22
24-OCT-1989	TOLUENE (EPA 8240)	L	101	66-126	2.	22
23-OCT-1989	CHLOROBENZENE (EPA 8240)	L	108	67-124	0.	22
25-OCT-1989	CHLOROBENZENE (EPA 8240)	L	113	67-124	2.	22
24-OCT-1989	CHLOROBENZENE (EPA 8240)	L	109	67-124	2.	22

M = Matrix Spike
L = Laboratory Control Sample Spike

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-001/007
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 24-OCT-1989
26-OCT-1989
Sample Type: LIQUID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.

Sample ID	Chromium (Total) mg/L EPA 200.7	Copper mg/L EPA 200.7	Lead mg/L EPA 200.7	Nickel mg/L EPA 200.7	Arsenic mg/L EPA 206.3
(92891732-01) GW-1	0.18	0.43	2.3	0.34	0.032
(92891732-05) GW-2		ND(0.05)		0.09	ND(0.005)
(92891732-09) GW-3	0.34	0.14		0.46	0.016
(92891732-13) GW-4	0.09	0.09	0.20	0.19	0.009
(92891732-17) GW-5		ND(0.05)		0.08	0.007
(92891732-21) GW-6	0.06	0.17		0.29	0.009
(92891732-25) SW-1		ND(0.05)		0.08	0.010
Blank	ND(0.02)	ND(0.05)	ND(0.05)	ND(0.02)	ND(0.005)

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-001/007
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
24-OCT-1989
23-OCT-1989
Sample Type: LIQUID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.

Sample ID	Chromium (Total) mg/L EPA 218.2	Lead mg/L EPA 239.2	Mercury mg/L EPA 245.1
(92891732-01) GW-1			0.001
(92891732-05) GW-2	0.013	ND(0.005)	ND(0.001)
(92891732-09) GW-3		0.020	ND(0.001)
(92891732-13) GW-4			ND(0.001)
(92891732-17) GW-5	0.019	ND(0.005)	ND(0.001)
(92891732-21) GW-6		0.020	ND(0.001)
(92891732-25) SW-1	0.021	ND(0.005)	ND(0.001)
Blank	ND(0.010)	ND(0.005)	ND(0.001)

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-001/007
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Date Analyzed: 25-OCT-1989
Sample Type: LIQUID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.

Sample ID	Mercury mg/L EPA 245.1
(92891732-01) GW-1	0.001
(92891732-05) GW-2	ND(0.001)
(92891732-09) GW-3	ND(0.001)
(92891732-13) GW-4	ND(0.001)
(92891732-17) GW-5	ND(0.001)
(92891732-21) GW-6	ND(0.001)
(92891732-25) SW-1	ND(0.001)
Blank	ND(0.001)

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8929208-001/007
Date Sampled: 13-OCT-1989
Date Sample Rec'd: 18-OCT-1989
Sample Type: LIQUID

Project: (92891732) HOLGUIN & ASSOCIATES, INC.

QA/QC Summary

Date	Parameter (Method)	QC Type	Average Spike Recovery	Acceptable Range	Relative Percent Difference	Acceptable Range
24-OCT-1989	CHROMIUM (EPA 200.7)	L	112	69-148	1.	30
24-OCT-1989	COPPER (EPA 200.7)	L	90	68-129	2.	25
24-OCT-1989	LEAD (EPA 200.7)	L	110	65-144	1.	25
24-OCT-1989	NICKEL (EPA 200.7)	L	109	65-146	1.	25
26-OCT-1989	ARSENIC (EPA 206.3)	L	95	78-118	0.	25
24-OCT-1989	CHROMIUM (EPA 218.2)	L	86	40-150	19.	50
23-OCT-1989	LEAD (EPA 239.2)	L	117	40-150	4.	50
25-OCT-1989	MERCURY (EPA 245.1)	L	108	41-137	5.	37
25-OCT-1989	1,1-DICHLOROETHENE (EPA 624)	L	101	58-118	10.	12
25-OCT-1989	TRICHLOROETHENE (EPA 624)	L	86	69-121	9.	16
25-OCT-1989	BENZENE (EPA 624)	L	104	63-120	8.	12
25-OCT-1989	TOLUENE (EPA 624)	L	98	68-121	4.	16
25-OCT-1989	CHLOROBENZENE (EPA 624)	L	106	66-123	8.	13

M = Matrix Spike
L = Laboratory Control Sample Spike

CHAIN OF CUSTODY/ANALYSIS REQUEST

Client Name: Dept. Parks & Rec.
Project Name: Candlestick Point
Sampler's Name: E. Steven Naylor
Sampler's Signature: E. Steven Naylor
Date Delivered: 10-16-89

H & A Sample #	Date Sampled	Time Sampled	Sample Type	Other Information (e.g. sampling location, depth, soil boring or MW #, etc.)	No. of Containers	Lead 7421	Nickel 7520	Copper 7210	Chromium 7190	Arsenic 7060	Mercury 7471	608 (Full)	Total Phenols 420.1	418.1	G24
GW-1	10-13-89	15:14	Water	500 ml clear HNO_3	1	X	X	X	X	X	X				
GW-1	10-13-89	15:15	Water	" " H_2SO_4	1								X	X	
GW-1	10-13-89	15:15	Water	1 L clear H_2SO_4	1									X	
GW-1	10:13-89	15:15	Water	1 l brown wide mouth	1										Extra
GW-1	10:13-89	15:15	Water	1 l " narrow "	1							X			
GW-1	10:13-89	15:15	Water	VOA	2										X
GW-2	10-13-89	14:30	Water	500 ml clear HNO_3	1	X	X	X	X	X	X				
GW-2	10-13-89	14:30	Water	" " H_2SO_4	1								X		
GW-2	10-13-89	14:30	Water	1 l clear H_2SO_4	1									X	
GW-2	10-13-89	14:30	Water	1 l brown wide mouth	1										Extra
GW-2	10-13-89	14:30	Water	1 l brown narrow mouth	1							X			
GW-2	10:13-89	14:30	Water	VOA	2										X
GW-3	10-13-89	14:50	Water	500 ml clear HNO_3	1	X	X	X	X	X	X				
GW-3	10-13-89	14:50	Water	" " " H_2SO_4	1								X		
GW-3	10-13-89	14:50	Water	1 l clear H_2SO_4	1									X	
GW-3	10-13-89	14:50	Water	1 l brown wide mouth	1										Extra

Analyses Requested

Send report to:
Holguin & Associates, Inc.
73 North Palm Street
Ventura, CA 93001
Attn: (Sampler's Name)

SPECIAL INSTRUCTIONS
(i.e. turnaround time, special detection limits, etc.)

Relinquished By: (Signature)	Date/Time	Received By: (Signature)
E. Steven Naylor	10-16-89 1:40	
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
		Lovelace

Laboratory Name & City
ENSECO CRL

(form updated 5/89)

Include Special Hazards Here:

Return sample(s)/cooler to: Holguin & Associates, Inc. • 73 No. Palm Street, Ventura, CA 93001 • (805) 652-0219 • FAX # (805) 652-0793

CHAIN OF CUSTODY/ANALYSIS REQUEST

Client Name: Dept. Parks and Recreation
Project Name: Candlestick Point
Sampler's Name: Steve Richardson
Sampler's Signature: Steve Richardson
Date Delivered: 10-16-89

H & A Sample #	Date Sampled	Time Sampled	Sample Type	Other Information (e.g. sampling location, depth, soil boring or MW #, etc.)	No. of Containers	Lead 7421	Nickel 7520	Copper 7210	Chromium 7190	Arsenic 7060	Mercury 7471	608 (Full)	Total Phenols 420.1	418.1	624
GW-3	10-13-89	1450	Water	1 l brown narrow mouth	1							X			
GW-3	10-13-89	1450	"	VOA	2										X
GW-4	10-12-89	4:15	"	500 ml clear HNO_3	1	X	X	X	X	X	X				
GW-4	"	"	"	" " " H_2SO_4	1								X		
GW-4	"	"	"	1 l clear H_2SO_4	1									X	
GW-4	"	"	"	1 l brown wide mouth	1										Extra
GW-4	"	"	"	1 l brown narrow mouth	1							X			
GW-4	"	"	"	VOA	2										X
GW-5	10-13-89	1:40	"	500 ml clear HNO_3	1	X	X	X	X	X	X				
GW-5	"	1:40	"	" " " H_2SO_4	1								X		
GW-5	"	"	"	1 l clear H_2SO_4	1									X	
GW-5	"	"	"	1 l brown wide mouth	1										Extra
GW-5	"	"	"	1 l brown narrow mouth	1							X			
GW-5	"	"	"	VOA	2										X
GW-6	"	1:15	"	~~1 l clear~~ 500 ml clear HNO_3	1	X	X	X	X	X	X				
GW-6	"	"	"	" " " H_2SO_4	1								X		

Send report to:
Holguin & Associates, Inc.
73 North Palm Street
Ventura, CA 93001
Attn: (Sampler's Name)

SPECIAL INSTRUCTIONS
(i.e. turnaround time, special detection limits, etc.)

Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Steve Richardson	10/16-89/1:40	
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
		J Lovelace

Laboratory Name & City: ENSECO-SRL

(form updated 5/89)

Include Special Hazards Here:

CHAIN OF CUSTODY/ANALYSIS REQUEST

Client Name	Project Name	Date Delivered
Dept. Parks & Recreation	Candlestick Point	10-16-89
Sampler's Name	**Sampler's Signature**	
Steve Richardson	Steve Richardson	

H & A Sample #	Date Sampled	Time Sampled	Sample Type	Other Information (e.g. sampling location, depth, soil boring or MW #, etc.)	No. of Containers	Lead 7421	Nickel 7520	Copper 7210	Chromium 7190	Arsenic 7060	Mercury 7471	418.1	624	608	Total Phenols
GW-6	10-13-89	1:15	Water	1l clear H_2SO_4	1							X			
GW-6	"	"	"	1l brown narrow mouth	1									X	
GW-6	"	"	"	1l brown wide mouth	1										
GW-6	"	"	"	VOA	2								X		
SW-1	"	6:45	"	500 ml clear HNO_3	1	X	X	X	X	X	X				
SW-1	"	6:45	"	1 l clear H_2SO_4	1							X			
SW-1	"	6:45	"	1 l brown wide mouth	1								~~X~~		
SW-1	"	18:45	"	VOA	2								X		

Send report to:
Holguin & Associates, Inc.
73 North Palm Street
Ventura, CA 93001
Attn: (Sampler's Name)

SPECIAL INSTRUCTIONS
(i.e. turnaround time, special detection limits, etc.)

Extra

EXTRA ~~HOLD~~

Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Steve Richardson	10-16-89 1:40	
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
		J Lovelace

Laboratory Name & City
ENSECO CRL

(form updated 5/89)

Include Special Hazards Here:

Return sample(s)/cooler to: Holguin & Associates, Inc. • 73 No. Palm Street, Ventura, CA 93001 • (805) 652-0219 • FAX # (805) 652-0793

CHAIN OF CUSTODY/ANALYSIS REQUEST

Client Name	Project Name	Date Delivered
Dept. Parks & Recreation	Candlestick Point	10-16-89
Sampler's Name: Steve Richardson, Steve Nailor	Sampler's Signature: Steve Richardson, Steve Nailor	

H & A Sample #	Date Sampled	Time Sampled	Sample Type	Other Information (e.g. sampling location, depth, soil boring or MW #, etc.)	No. of Containers	Analyses Requested: Lead 7421	Nickel 7520	Copper 7210	Chromium 7190	8240	@ 418.1
CS-1-1	10-11-89	5:45	Soil		2						
CS-1-1	10-13-89	18:00	Soil	composited into CS-1	2	X	X	X	X	X	X
CS-2-1	10-11-89	5:55	Soil		2						
CS-2-1	10-13-89	18:30	Soil	composited into CS-2	2	X	X	X	X	X	X
CS-3-1	10-11-89	6:00	Soil		2						
CS-3-1	10-13-89	18:50	Soil	composite into CS-3	2	X	X	X	X	X	X
CS-4-1	10-11-89	6:15	Soil	composite into CS-4	3	X	X	X	X	X	X
CS-5-1	10-11-89	6:30	Soil	composite into CS-5	3	X	X	X	X	X	X
CS-6-1	10-11-89	6:45	Soil	composite into CS-6	3	X	X	X	X	X	X
CS-7-1	10-11-89	7:10	Soil	composite into CS-7	2	X	X	X	X	X	X
CS-8-1	10-13-89	17:20	Soil	composite into CS-8	4	X	X	X	X	X	X
CS-9-1	10-13-89	17:00	Soil	composite into CS-9	4	X	X	X	X	X	X

Send report to:
Holguin & Associates, Inc.
73 North Palm Street
Ventura, CA 93001
Attn: (Sampler's Name)

SPECIAL INSTRUCTIONS
(i.e. turnaround time, special detection limits, etc.)

Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Steve Richardson, Steve Nailor	10-16-89 / 11:40	
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Relinquished By: (Signature)	Date/Time	Received By: (Signature)

Laboratory Name & City
ENSECO - CRL

(form updated 5/89)

Include Special Hazards Here:

Return sample(s)/cooler to: Holguin & Associates, Inc. • 73 No. Palm Street, Ventura, CA 93001 • (805) 652-0219 • FAX # (805) 652-0793

CHAIN OF CUSTODY/ANALYSIS REQUEST

Client Name	Project Name	Date Delivered
Dept Parks & Recreation	Candlestick Park	10-16-89
Sampler's Name	**Sampler's Signature**	
Steve Richardson	Steve Richardson	

H & A Sample #	Date Sampled	Time Sampled	Sample Type	Other Information (e.g. sampling location, depth, soil boring or MW #, etc.)	No. of Containers	Analyses Requested: Lead 7421	Nickel 7520	Copper 7210	Chromium 7190	8240	418.1
MW-5-5	10-11-89	11:15	Soil		1						
MW-5-9	10-11-89	11:30	Soil	composite into MW-5	1	X	X	X	X	X	X
MW-6-4	10-11-89	1:45	Soil		1						
MW-6-8	10-11-89	2:00	Soil	composite into MW-6	1	X	X	X	X	X	X

Send report to:
Holguin & Associates, Inc.
73 North Palm Street
Ventura, CA 93001
Attn: (Sampler's Name)

SPECIAL INSTRUCTIONS
(i.e. turnaround time, special detection limits, etc.)

Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Steve Richardson	10-16-89 11:40	
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
		Lovelace

Laboratory Name & City
CRL, Ventura

(form updated 5/89)

Include Special Hazards Here:

Return sample(s)/cooler to: Holguin & Associates, Inc. • 73 No. Palm Street, Ventura, CA 93001 • (805) 652-0219 • FAX # (805) 652-0793

CHAIN OF CUSTODY/ANALYSIS REQUEST

Client Name	Project Name	Date Delivered
Dept. Parks & Recreation	Candlestick Park	10-16-89
Sampler's Name	**Sampler's Signature**	
Steve Richardson	Steve Richardson	

H & A Sample #	Date Sampled	Time Sampled	Sample Type	Other Information (e.g. sampling location, depth, soil boring or MW #, etc.)	No. of Containers	Analyses Requested: Lead 7421	Nickel 7520	Copper 7210	Chromium 7190	8240	418.1
BH-1-1	10-10-89	9:30	Soil		1						
BH-1-6	10-11-89	18:30	Soil	composite into BH-1	1	X	X	X	X	X	X
BH-2-2	10-10-89	10:20	Soil		1						
BH-2-5	10:11-89	18:10	Soil	composite into BH-2	1	X	X	X	X	X	X
BH-3-1	10-10-89	11:05	Soil		1						
BH-3-4	10-11-89	17:45	Soil	composite into BH-3	1	X	X	X	X	X	X
BH-4-1	10-10-89	12:00	Soil		2						
BH-4-4	10-11-89	18:00	Soil	composite into BH-4	1	X	X	X	X	X	X
BH-11-1	10-11-89	8:10	Soil	composite into BH-11	2	X	X	X	X	X	X
BH-12-1	10-11-89	8:26	Soil		1						
BH-12-4	10-11-89	8:40	Soil	composite into BH-12	1	X	X	X	X	X	X
BH-13-1	10-11-89	10:05	Soil		2						
BH-13-5	10-11-89	10:25	Soil	composite into BH-13	1	X	X	X	X	X	X
BH-14-1	10-11-89	11:10	Soil		2						
BH-14-6	10-11-89	14:30	Soil	composite into BH-14	1	X	X	X	X	X	X

Send report to:

Holguin & Associates, Inc.
73 North Palm Street
Ventura, CA 93001
Attn: (Sampler's Name)

SPECIAL INSTRUCTIONS
(i.e. turnaround time, special detection limits, etc.)

Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Steve Richardson	10-16-89/11:40	
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
		Lovelace

Laboratory Name & City

CRL, Ventura

(form updated 5/89)

Include Special Hazards Here:

Return sample(s)/cooler to: Holguin & Associates, Inc. • 73 No. Palm Street, Ventura, CA 93001 • (805) 652-0219 • FAX # (805) 652-0793

CHAIN OF CUSTODY/ANALYSIS REQUEST

Client Name	Project Name	Date Delivered
Dept. Parks + Recreation	Candlestick Point	10-16-89
Sampler's Name: Steve Richardson	Sampler's Signature: Steve Richardson	

H & A Sample #	Date Sampled	Time Sampled	Sample Type	Other Information (e.g. sampling location, depth, soil boring or MW #, etc.)	No. of Containers	Analyses Requested: Lead 7421	Nickel 7520	Copper 7210	Chromium 7190	8240	418.1
BH-15-1	10-11-89	13:00	Soil		1						
BH-15-6	10:11:89	17:00	Soil		1						
BH-15-10	10-11-89	17:20	Soil	composite into BH-15	1	X	X	X	X	X	X
BH-16-1	10-11-89	13:25	Soil		1						
BH-16-6	10-11-89	17:10	Soil	composite into BH-16	1	X	X	X	X	X	X
BH-17-1	10-11-89	14:20	Soil		1						
BH-17-6	10-11-89	17:40	Soil	composite into BH-17	1	X	X	X	X	X	X
BH-18-1	10-11-89	3:40	Soil		1						
BH-18-6	10-11-89	3:50	Soil	composite into BH-18	1	X	X	X	X	X	X
BH-19-1	10-11-89	16:00	Soil		1						
BH-19-6	10-11-89	14:10	Soil	composite into BH-19	1	X	X	X	X	X	X
BH-20-1	10-11-89	18:39	Soil		1						
BH-20-6	10-11-89	18:40	Soil	composite into BH-20	1	X	X	X	X	X	X

Send report to:

Holguin & Associates, Inc.
73 North Palm Street
Ventura, CA 93001
Attn: (Sampler's Name)

SPECIAL INSTRUCTIONS
(i.e. turnaround time, special detection limits, etc.)

Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Steve Richardson	10-16-89 / 11:40	
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Relinquished By: (Signature)	Date/Time	Received By: (Signature) G Lovelace

Laboratory Name & City: CRL, Ventura

(form updated 5/89)

Include Special Hazards Here:

ENSECO—CRL/Ventura
2810 Bunsen Ave. Unit A • Ventura, CA 93003
(805) 650-0546 • FAX: (805) 650-0756

Enseco

Holguin & Associates, Inc.
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

11/17/89

Attn: Mark Fahan
805/652/0219

Project:Candlestick Point
Park and Recreation Dept.

Sample #: 9284172401
Received: 10/11/89
Type: Soil

Collector: Client
Sampling Date & Time: 10/10/89, 1415
Method: Grab

I.D.: BH-5-3

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	72	mg/kg	5
Lead, Total	EPA 7420	130	mg/kg	1
Nickel	EPA 7520	16	mg/kg	1
Copper	EPA 7210	10	mg/kg	1
Chromium, Total	EPA 7190	24	mg/kg	1

Sample #: 9284172402
Received: 10/11/89
Type: Soil

Collector: Client
Sampling Date & Time: 10/10/89, 1500
Method: Grab

I.D.: BH-6-2

EPA Method 624/8240		See Attached		
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	ND <5	mg/kg	5
Lead, Total	EPA 7420	160	mg/kg	1
Nickel	EPA 7520	58	mg/kg	1
Copper	EPA 7210	20	mg/kg	1
Chromium, Total	EPA 7190	37	mg/kg	1

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
The Report Cover Letter is an integral part of this report.

ENSECO—CRL/Ventura
2810 Bunsen Ave. Unit A • Ventura, CA 93003
(805) 650-0546 • FAX: (805) 650-0756

Enseco

Sample #: 9284172403 Collector: Client
Received: 10/11/89 Sampling Date & Time: 10/10/89, 1609
Type: Soil Method: Grab

I.D.: BH-7-3,5 (Composite @ lab)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	440	mg/kg	5
Lead, Total	EPA 7420	1000	mg/kg	1
Nickel	EPA 7520	160	mg/kg	1
Copper	EPA 7210	4200	mg/kg	1
Chromium, Total	EPA 7190	35	mg/kg	1

Sample #: 9284172404 Collector: Client
Received: 10/11/89 Sampling Date & Time: 10/10/89, ****
Type: Soil Method: Grab

I.D.: BH-8-1,5,8 (Composite @ lab)

EPA Method 624/8240		See Attached		
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	310	mg/kg	5
Lead, Total	EPA 7420	1100	mg/kg	1
Nickel	EPA 7520	170	mg/kg	1
Copper	EPA 7210	82	mg/kg	1
Chromium, Total	EPA 7190	40	mg/kg	1

Sample #: 9284172405 Collector: Client
Received: 10/11/89 Sampling Date & Time: 10/10/89, ****
Type: Soil Method: Grab

I.D.: BH-9-1,5,8 (Composite @ lab)

EPA Method 624/8240		See Attached		
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	750	mg/kg	5
Lead, Total	EPA 7420	50	mg/kg	1
Nickel	EPA 7520	340	mg/kg	1
Copper	EPA 7210	31	mg/kg	1
Chromium, Total	EPA 7190	52	mg/kg	1

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
The Report Cover Letter is an integral part of this report.

ENSECO—CRL/Ventura
2810 Bunsen Ave. Unit A • Ventura, CA 93003
(805) 650-0546 • FAX: (805) 650-0756

Enseco

Sample #: 9284172406 Collector: Client
Received: 10/11/89 Sampling Date & Time: 10/10/89, ****
Type: Soil Method: Grab

I.D.: BH-10-1,5 (Composite @ lab)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	70	mg/kg	5
Lead, Total	EPA 7420	64	mg/kg	1
Nickel	EPA 7520	30	mg/kg	1
Copper	EPA 7210	51	mg/kg	1
Chromium, Total	EPA 7190	45	mg/kg	1

Reviewed

Approved

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
The Report Cover Letter is an integral part of this report.

Enseco - CRL / South Coast
7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 891-5917

Enseco

November 3, 1989

ENSECO CRL VENTURA
2810 BUNSEN AVE., UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8928618-001/010
Date Sampled: 10-OCT-1989
Date Sample Rec'd: 13-OCT-1989
Project: (92841721) HOLGUIN & ASSOCIATES, INC.

Enclosed with this letter is the report on the chemical and physical analyses on the samples from ANALYSIS NO: G-8928618-001/010 shown above.

The samples were received by CRL in a chilled state, intact and with the chain-of-custody record attached.

Please note that ND( ) means not detected at the detection limit expressed within the parentheses.

Solid samples are reported on "as received" basis.

Reviewed

Approved

Enseco - CRL / South Coast
7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 891-5917

Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8928618-001
Date Sampled: 10-OCT-1989
Date Sample Rec'd: 13-OCT-1989
Date Analyzed: 24-OCT-1989
Sample Type: SOLID

Project: (92841724) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92841724-01) BH-5-3

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	12.	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

Note: The analytical results for Acetone should not be considered reliable unless the concentration in the sample exceeds five times the detection limit

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FAX: (714) 891-5917

Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8928618-002
Date Sampled: 10-OCT-1989
Date Sample Rec'd: 13-OCT-1989
Date Analyzed: 22-OCT-1989
Sample Type: SOLID

Project: (92841724) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92841724-02) BH-6-2

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8928618-003
Date Sampled: 10-OCT-1989
Date Sample Rec'd: 13-OCT-1989
Date Analyzed: 24-OCT-1989
Sample Type: SOLID

Project: (92841724) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92841724-03) BH-7-3,5

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8928618-004
Date Sampled: 10-OCT-1989
Date Sample Rec'd: 13-OCT-1989
Date Analyzed: 22-OCT-1989
Sample Type: SOLID

Project: (92841724) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92841724-04) BH-8-1,5,8

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	6.	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8928618-005
Date Sampled: 10-OCT-1989
Date Sample Rec'd: 13-OCT-1989
Date Analyzed: 24-OCT-1989
Sample Type: SOLID

Project: (92841724) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92841724-05) BH-9-1,5,8

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8928618-006
Date Sampled: 10-OCT-1989
Date Sample Rec'd: 13-OCT-1989
Date Analyzed: 24-OCT-1989
Sample Type: SOLID

Project: (92841724) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92841724-06) BH-10-1,5

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

Enseco

☐ 7440 Lincoln Way, Garden Grove, CA 92641, (714) [redacted]5370
☐ 2810 Bunsen Ave., Unit A Ventura, CA 93003, (80[redacted]0-0546
☐ 2325 Skyway Dr., Unit K, Santa Maria, CA 93455, (805) 922-2776
☐ 9537 Telstar Ave., Unit 118, El Monte, CA 91731, (818) 442-8400
☐ Mobile Labs, (800) ENSECO-8

CHAIN OF CUSTODY RECORD

Date 10-11-89 Page 1 of 2

Lab Number _____

CLIENT: Candlestick Point - Parks + Rec Dept

ADDRESS: Candlestick Point

PROJECT NAME

CONTRACT / PURCHASE ORDER / QUOTE #

PROJECT MANAGER: Mark Faham

PHONE NUMBER: 805-483-5109

SITE CONTACT

ANALYSES: Lead, Nickel, Copper, Chromium, 8240, 418.1

	Sample No. / Identification	Date	Time	Lab Sample Number	SAMPLE TYPE LIQ.	AIR	SOLID	No. of Containers	Sample Condition/ REMARKS
1	BH-5-3	10/10/89	14:15				X	3	
2	BH-6-2	"	15:00				X	3	
3	BH-7-3	"	16:09				X	1	Composite
	BH-7-5	"	16:10				X	2	
4	BH-8-1	"	18:00				X	2	Composite
	BH-8-5	"	17:00				X	1	
	BH-8-8	"	17:25				X	1	
5	BH-9-1	"	17:30				X	1	Composite
	BH-9-5	"	17:50				X	1	
	BH-9-8	"	17:50				X	1	

SAMPLERS: (Signature) Mark Faham

Relinquished by: (Signature)

Received by: (Signature)

Date 10/11/89 Time 4:54

Relinquished by: (Signature)

Received by: (Signature)

Date _____ Time _____

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Enseco Terms and Conditions, unless a contract or purchase order has been executed and is cited above.

Relinquished by: (Signature) Mark Faham

Date _____ Time _____

Received for Laboratory by: J. Rood

Date RECEIVED 10/11/89 Time 1710

Date ACCEPTED _____ Time _____

Method of Shipment: Hand Delivered

Special Instructions:

SAMPLE DISPOSITION:

1. Storage time requested: _____ days
(Samples will be stored for 30 days without additional charges; thereafter storage charges will be billed at the published rates.)

2. Sample to be returned to client: Y N
(Enseco will dispose of unreturned samples at no extra charge. Disposal will be by incineration wherever possible; otherwise, as appropriate, according to legal requirements.)

DISTRIBUTION: White with report, Yellow to Enseco, Pink to Courier, Gold to Sample Control

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☐ 7440 Lincoln Way, Garden Grove, CA 92641, (714) [redacted]6370
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☐ Mobile Labs, (800) ENSECO-8

CHAIN OF CUSTODY RECORD

Date 10-11-89 Page [redacted] of 2

Lab Number _____

CLIENT State of Calif. Parks + Rec.

ADDRESS San Francisco

Candlestick Point

PROJECT NAME

CONTRACT / PURCHASE ORDER / QUOTE #

PROJECT MANAGER

Mark Faham

PHONE NUMBER

805-682-0219

SITE CONTACT

ANALYSES

Sample No. / Identification	Date	Time	Lab Sample Number	SAMPLE TYPE LIQ.	AIR	SOLID	No. of Containers	Lead	Nickel	Copper	Chromium	8240	418.1	Sample Condition/ REMARKS
BH-10-1	10/10/89	17:30	4			X	1	X	X	X	X	X	X	3 Composite
BH-10-5	"	11:30				X	1							

SAMPLERS: (Signature) Mark Faham

Received by: (Signature) _____ Date 10/11/89 Time 17:00

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Enseco Terms and Conditions, unless a contract or purchase order has been executed and is cited above.

Relinquished by: (Signature) _____

Received by: (Signature) _____ Date _____ Time _____

Relinquished by: (Signature) Mark Faham Date _____ Time _____

Received for Laboratory by: Jc Rod Date RECEIVED 10/11/89 Time 1710 Date ACCEPTED _____ Time _____

Method of Shipment: Hand Delivered

Special Instructions:

SAMPLE DISPOSITION:

1. Storage time requested: _____ days
(Samples will be stored for 30 days without additional charges; thereafter storage charges will be billed at the published rates.)

2. Sample to be returned to client: Y N
(Enseco will dispose of unreturned samples at no extra charge. Disposal will be by incineration wherever possible; otherwise, as appropriate, according to legal requirements.)

DISTRIBUTION: White with report, Yellow to Enseco, Pink to Courier, Gold to Sample Control

ENSECO—CRL/Ventura
2810 Bunsen Ave. Unit A • Ventura, CA 93003
(805) 650-0546 • FAX: (805) 650-0756

Enseco

Sample #: 9284174803 Collector: Client
Received: 10/11/89 Sampling Date & Time: 10/10/89, 1345
Type: Soil Method: Grab

I.D.: MW-2 (Composite of 2-4,2-9)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	9	mg/kg	5
Lead, Total	EPA 7420	ND <5	mg/kg	1
Nickel	EPA 7520	70	mg/kg	1
Copper	EPA 7210	43	mg/kg	1
Chromium, Total	EPA 7190	89	mg/kg	1

Sample #: 9284174804 Collector: Client
Received: 10/11/89 Sampling Date & Time: 10/10/89, 0850
Type: Soil Method: Grab

I.D.: MW-4-3

EPA Method 624/8240		See Attached		
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	57	mg/kg	5
Lead, Total	EPA 7420	10	mg/kg	1
Nickel	EPA 7520	380	mg/kg	1
Copper	EPA 7210	45	mg/kg	1
Chromium, Total	EPA 7190	210	mg/kg	1

Reviewed Approved

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
The Report Cover Letter is an integral part of this report.

ENSECO—CRL/Ventura
2810 Bunsen Ave. Unit A • Ventura, CA 93003
(805) 650-0546 • FAX: (805) 650-0756

Holguin & Associates, Inc. 11/17/89
73 N. Palm Street
Ventura, CA 93001
Fax # (805) 652-0793

Attn: Mark Fahan
805/652/0219

Project:Candlestick Point
Park and Recreation Dept.

Sample #: 9284174801
Received: 10/11/89
Type: Soil

Collector: Client
Sampling Date & Time: 10/10/89, 0845
Method: Grab

I.D.: MW-1 (Composite of 1-4,1-8)

CONSTITUENT	METHOD	RESULT	UNIT	MDL
EPA Method 624/8240		See Attached		
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	150	mg/kg	5
Lead, Total	EPA 7420	280	mg/kg	1
Nickel	EPA 7520	110	mg/kg	1
Copper	EPA 7210	60	mg/kg	1
Chromium, Total	EPA 7190	48	mg/kg	1

Sample #: 9284174802
Received: 10/11/89
Type: Soil

Collector: Client
Sampling Date & Time: 10/10/89, 1510
Method: Grab

I.D.: MW-3 (Composite of 3-4,3-10)

EPA Method 624/8240		See Attached		
Totl.Recov.Petrol.Hydrocarbons	EPA 418.1	30	mg/kg	5
Lead, Total	EPA 7420	30	mg/kg	1
Nickel	EPA 7520	55	mg/kg	1
Copper	EPA 7210	630	mg/kg	1
Chromium, Total	EPA 7190	46	mg/kg	1

[ND = None Detected; (G) = Grab; MDL = Minimum Detection Limit]
The Report Cover Letter is an integral part of this report.

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November 3, 1989

ENSECO CRL VENTURA
2810 BUNSEN AVE., UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8928618-001/010
Date Sampled: 10-OCT-1989
Date Sample Rec'd: 13-OCT-1989
Project: (92841721) HOLGUIN & ASSOCIATES, INC.

Enclosed with this letter is the report on the chemical and physical analyses on the samples from ANALYSIS NO: G-8928618-001/010 shown above.

The samples were received by CRL in a chilled state, intact and with the chain-of-custody record attached.

Please note that ND( ) means not detected at the detection limit expressed within the parentheses.

Solid samples are reported on "as received" basis.

Joan R. De La Cruz
Reviewed

Paul Christe
Approved

Enseco - CRL / South Coast
7440 Lincoln Way • Garden Grove, CA 92641
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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8928618-007
Date Sampled: 10-OCT-1989
Date Sample Rec'd: 13-OCT-1989
Date Analyzed: 24-OCT-1989
Sample Type: SOLID

Project: (92841724) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92841748-01) MW-1

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	23.	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

Note: The analytical results for Acetone should not be considered reliable unless the concentration in the sample exceeds five times the detection limit

Enseco - CRL / South Coast
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Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8928618-008
Date Sampled: 10-OCT-1989
Date Sample Rec'd: 13-OCT-1989
Date Analyzed: 24-OCT-1989
Sample Type: SOLID

Project: (92841724) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92841748-02) MW-3

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	11.	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

Note: The analytical results for Acetone should not be considered reliable unless the concentration in the sample exceeds five times the detection limit

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7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 891-5917

Enseco

Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8928618-009
Date Sampled: 10-OCT-1989
Date Sample Rec'd: 13-OCT-1989
Date Analyzed: 24-OCT-1989
Sample Type: SOLID

Project: (92841724) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92841748-03) MW-2

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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FAX: (714) 891-5917

Enseco

Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB

Analysis No.: G-8928618-010
Date Sampled: 10-OCT-1989
Date Sample Rec'd: 13-OCT-1989
Date Analyzed: 24-OCT-1989
Sample Type: SOLID

Project: (92841724) HOLGUIN & ASSOCIATES, INC.
Sample ID: (92841748-04) MW-4-3

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	17.	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	ND	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	5.	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

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FAX: (714) 891-5917

Enseco

Laboratory Report

ENSECO CRL VENTURA
2810 BUNSEN AVENUE, UNIT A
VENTURA, CA 93003
ATTN: MR. LEO RAAB
Project: (92841724) HOLGUIN & ASSOCIATES, INC.

Analysis No.: G-8928618-001/010
Date Sampled: 10-OCT-1989
Date Sample Rec'd: 13-OCT-1989
Sample Type: SOLID

QA/QC Summary

Date	Parameter (Method)	QC Type	Average Spike Recovery	Acceptable Range	Relative Percent Difference	Acceptable Range
20-OCT-1989	1,1-DICHLOROETHENE (EPA 8240)	L	96	54-134	4.	25
20-OCT-1989	TRICHLOROETHENE (EPA 8240)	L	113	67-124	2.	21
20-OCT-1989	BENZENE (EPA 8240)	L	108	62-126	4.	24
20-OCT-1989	TOLUENE (EPA 8240)	L	102	66-126	4.	22
20-OCT-1989	CHLOROBENZENE (EPA 8240)	L	111	67-124	2.	22

M = Matrix Spike
L = Laboratory Control Sample Spike

CHAIN OF CUSTODY/ANALYSIS REQUEST

Client Name	Project Name	Date Delivered
Dept Parks & Rec	Candlestick Point	10-11-89
Sampler's Name	**Sampler's Signature**	
Steve Richardson	Steve Richardson	

H & A Sample #	Date Sampled	Time Sampled	Sample Type	Other Information (e.g. sampling location, depth, soil boring or MW #, etc.)	No. of Containers	Analyses Requested: Lead	Nickel	Copper	Chromium	8240	418.1
MW-1-4	10-10-89	8:45	Soil		1	X	X	X	X	X	X
MW-1-8	10-10-89	9:00	Soil	Composite into MW-1	1						
MW-2-4	10-10-89	3:10	Soil		1	X	X	X	X	X	X
MW-2-10	10:10-89	3:25	Soil	Composite into MW-2	1						
MW-3-4	10-10-89	1:30	Soil		1	X	X	X	X	X	X
MW-3-9	10-10-89	1:45	Soil	Composite into MW-3	1						
MW-4-3	10-11-89	8:50	Soil		1	X	X	X	X	X	X

Send report to:

Holguin & Associates, Inc.
73 North Palm Street
Ventura, CA 93001
Attn: (Sampler's Name)

SPECIAL INSTRUCTIONS
(i.e. turnaround time, special detection limits, etc.)

Relinquished By: (Signature)	Date/Time	Received By: (Signature)
Steve Richardson	11:00 / 10-11-89	M Holguin
Relinquished By: (Signature)	Date/Time	Received By: (Signature)
	10/11/89 1700	
Relinquished By: (Signature)	Date/Time	Received By: (Signature)

Laboratory Name & City

ENSECO - CRL

(form updated 5/89)

Include Special Hazards Here:

Return sample(s)/cooler to: Holguin & Associates, Inc. • 73 No. Palm Street, Ventura, CA 93001 • (805) 652-0219 • FAX # (805) 652-0793

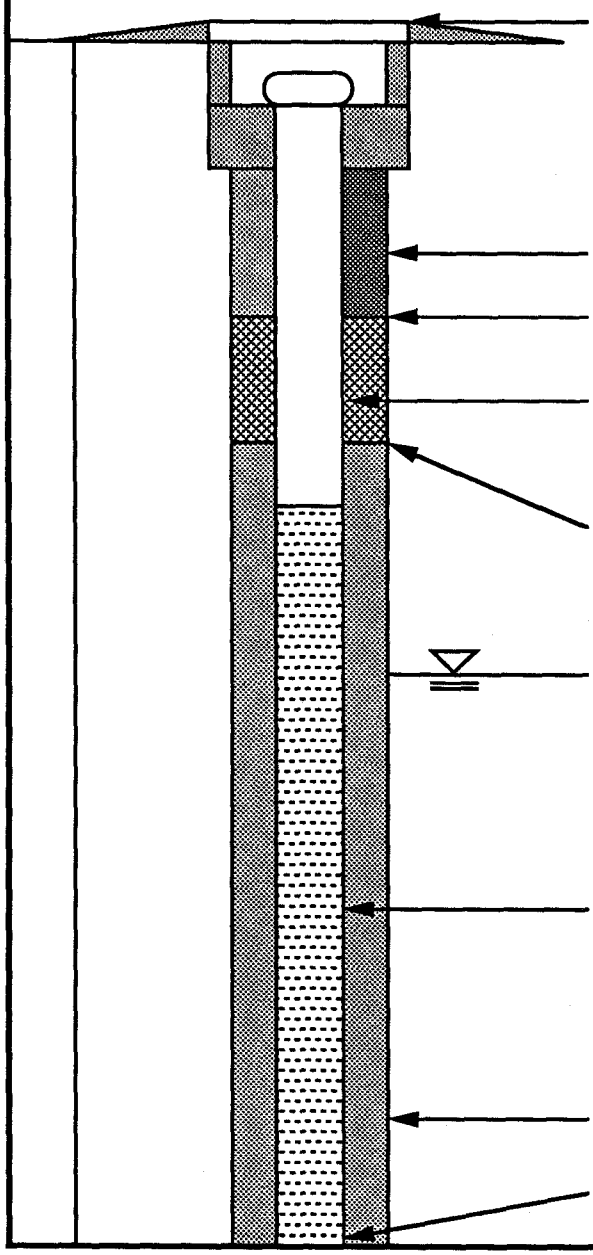
HOLGUIN,
FAHAN
& ASSOCIATES, INC.
ENVIRONMENTAL MANAGEMENT CONSULTANTS

ATTACHMENT 5

GROUND WATER WELL CONSTRUCTION DETAILS

GROUND WATER WELL CONSTRUCTION DETAILS

Project	Candlestick Point Soil and Water Quality	Well No.	MW-1
Site	Candlestick Point State Recreation Area	Aquifer	
Coordinates			
Date Completed	October 10, 1989		
Supervised by	Steve Richardson, R.G. #4684		



Elevation of reference point	7.25 feet
Height of reference point above ground surface	2 inches
Depth of surface seal	2 feet
Type of surface seal	concrete
Diameter of borehole	8 inches
Elevation/depth of top of seal	2 feet
Type of seal	Bentonite
Elevation/depth of top of screen	5 feet
Description of screen	0.02-inch slots
Type of gravel pack	#3 Monterey sand
Elevation/depth of top of gravel pack	4 feet
Elevation/depth of ground water from reference point	9.14 feet
I.D. of riser pipe	2 inches
Type of riser pipe	Sch. 40 PVC
Depth of borehole	31 feet
Depth of well	30.3 feet

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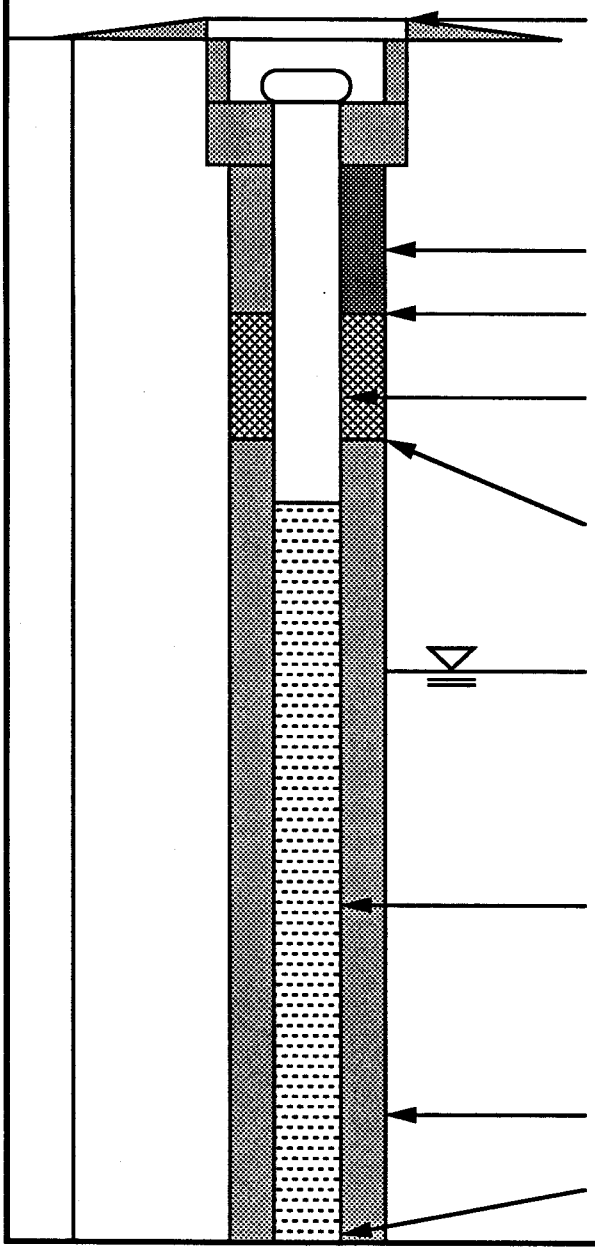
GROUND WATER WELL CONSTRUCTION DETAILS

Project	Candlestick Point Soil and Water Quality	Well No.	MW-2
Site	Candlestick Point State Recreation Area		
Coordinates		Aquifer	
Date Completed	October 10, 1989		
Supervised by	Steve Richardson, R.G. #4684		



Elevation of reference point	7.52 feet
Height of reference point above ground surface	2 inches
Depth of surface seal	2 feet
Type of surface seal	concrete
Diameter of borehole	8 inches
Elevation/depth of top of seal	2 feet
Type of seal	Bentonite
Elevation/depth of top of screen	5 feet
Description of screen	0.02-inch slots
Type of gravel pack	#3 Monterey sand
Elevation/depth of top of gravel pack	4 feet
Elevation/depth of ground water from reference point	15.03 feet
I.D. of riser pipe	2 inches
Type of riser pipe	Sch. 40 PVC
Depth of borehole	31 feet
Depth of well	30.33 feet

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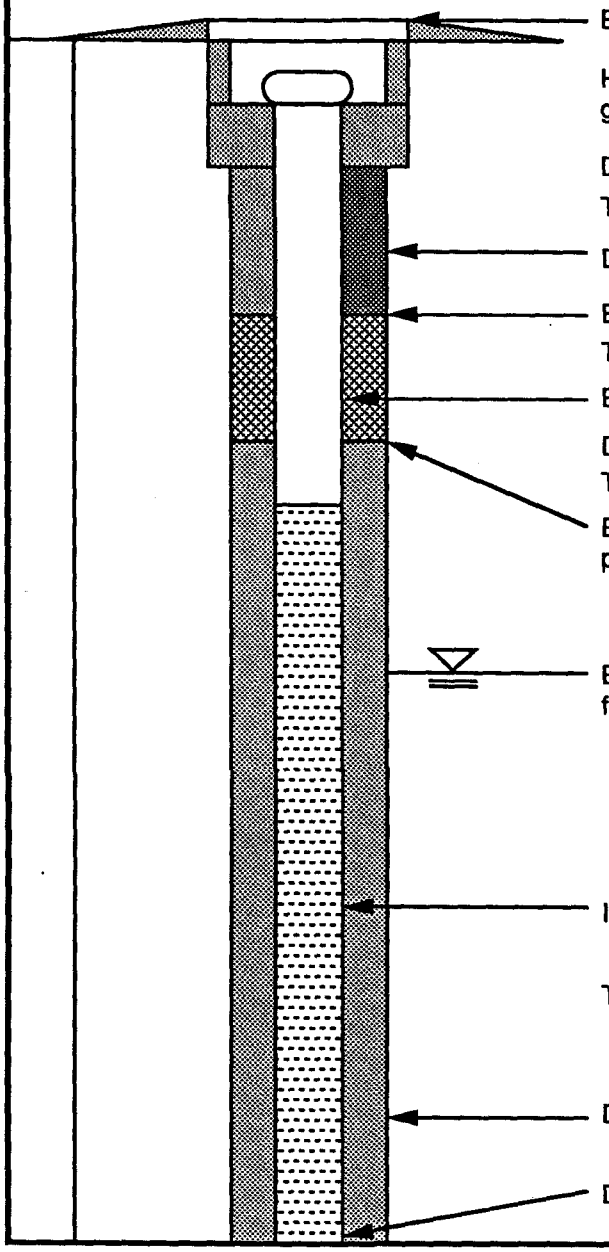
GROUND WATER WELL CONSTRUCTION DETAILS

Project	Candlestick Point Soil and Water Quality	Well No.	MW-3
Site	Candlestick Point State Recreation Area		
Coordinates		Aquifer	
Date Completed	October 10, 1989		
Supervised by	Steve Richardson, R.G. #4684		



Elevation of reference point	7.93 feet
Height of reference point above ground surface	2 inches
Depth of surface seal	2 feet
Type of surface seal	concrete
Diameter of borehole	8 inches
Elevation/depth of top of seal	2 feet
Type of seal	Bentonite
Elevation/depth of top of screen	5 feet
Description of screen	0.02-inch slots
Type of gravel pack	#3 Monterey sand
Elevation/depth of top of gravel pack	4 feet
Elevation/depth of ground water from reference point	10.32 feet
I.D. of riser pipe	2 inches
Type of riser pipe	Sch. 40 PVC
Depth of borehole	31 feet
Depth of well	27.29 feet

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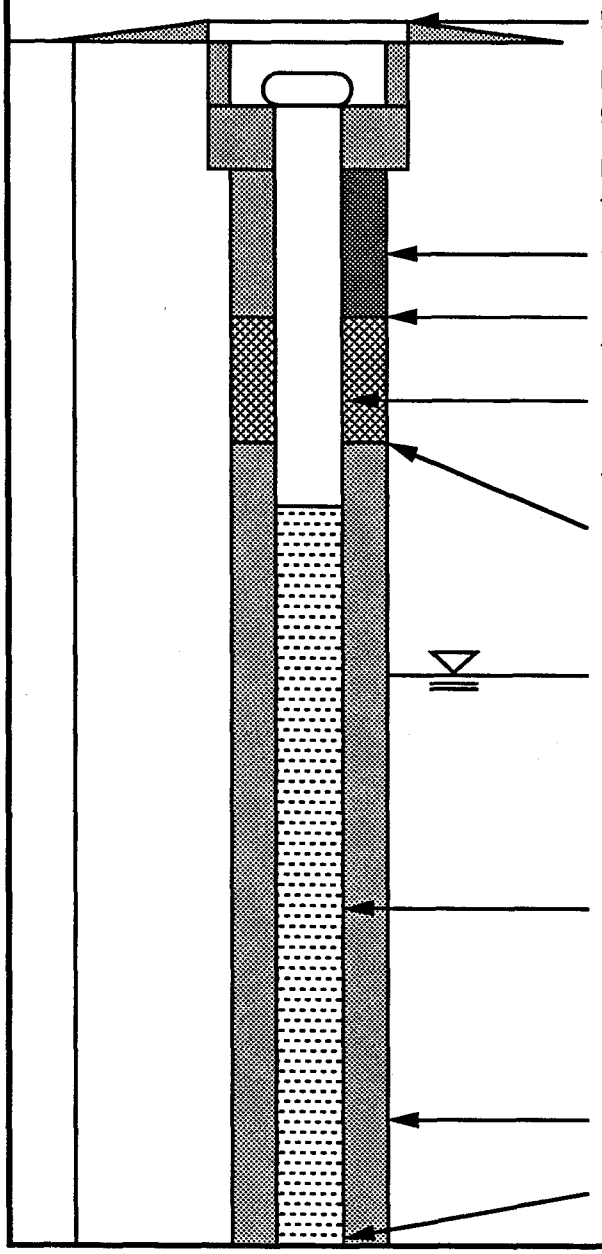
GROUND WATER WELL CONSTRUCTION DETAILS

Project	Candlestick Point Soil and Water Quality	Well No.	MW-4
Site	Candlestick Point State Recreation Area		
Coordinates		Aquifer	
Date Completed	October 10, 1989		
Supervised by	Steve Richardson, R.G. #4684		



Elevation of reference point	4.04 feet
Height of reference point above ground surface	2 inches
Depth of surface seal	1 foot
Type of surface seal	concrete
Diameter of borehole	8 inches
Elevation/depth of top of seal	1 foot
Type of seal	Bentonite
Elevation/depth of top of screen	3 feet
Description of screen	0.02-inch slots
Type of gravel pack	#3 Monterey sand
Elevation/depth of top of gravel pack	2 feet
Elevation/depth of ground water from reference point	4.66 feet
I.D. of riser pipe	2 inches
Type of riser pipe	Sch. 40 PVC
Depth of borehole	25 feet
Depth of well	23 feet

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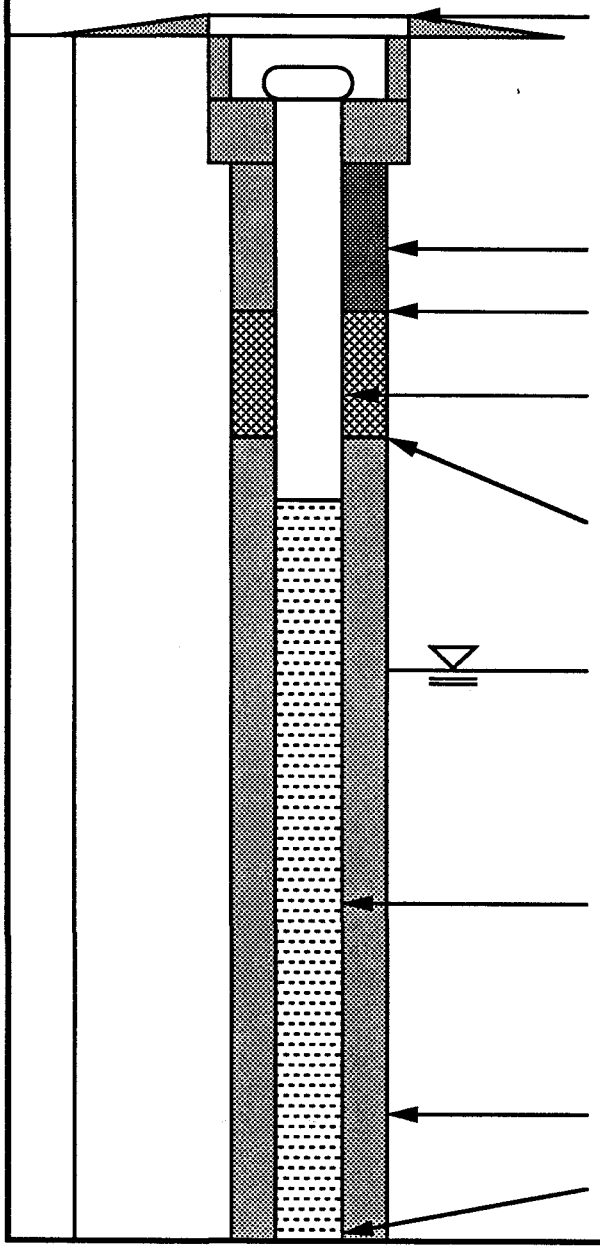
GROUND WATER WELL CONSTRUCTION DETAILS

Project	Candlestick Point Soil and Water Quality	Well No.	MW-5
Site	Candlestick Point State Recreation Area		
Coordinates		Aquifer	
Date Completed	October 10, 1989		
Supervised by	Steve Richardson, R.G. #4684		



Elevation of reference point	7.51 feet
Height of reference point above ground surface	2 inches
Depth of surface seal	2 feet
Type of surface seal	concrete
Diameter of borehole	8 inches
Elevation/depth of top of seal	2 feet
Type of seal	Bentonite
Elevation/depth of top of screen	5 feet
Description of screen	0.02-inch slots
Type of gravel pack	#3 Monterey sand
Elevation/depth of top of gravel pack	4 feet
Elevation/depth of ground water from reference point	6.97 feet
I.D. of riser pipe	2 inches
Type of riser pipe	Sch. 40 PVC
Depth of borehole	31 feet
Depth of well	29.92 feet

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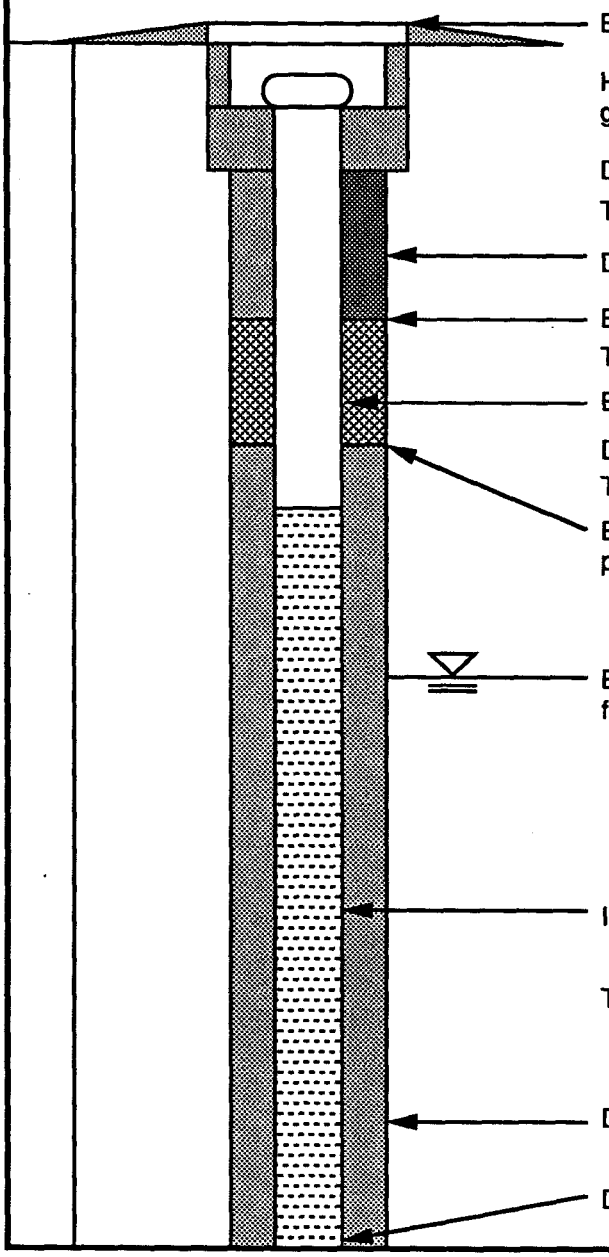
GROUND WATER WELL CONSTRUCTION DETAILS

Project	Candlestick Point Soil and Water Quality	Well No.	MW-6
Site	Candlestick Point State Recreation Area		
Coordinates		Aquifer	
Date Completed	October 10, 1989		
Supervised by	Steve Richardson, R.G. #4684		



Elevation of reference point	7.51 feet
Height of reference point above ground surface	2 inches
Depth of surface seal	2 feet
Type of surface seal	concrete
Diameter of borehole	8 inches
Elevation/depth of top of seal	2 feet
Type of seal	Bentonite
Elevation/depth of top of screen	5 feet
Description of screen	0.02-inch slots
Type of gravel pack	#3 Monterey sand
Elevation/depth of top of gravel pack	4 feet
Elevation/depth of ground water from reference point	6.46 feet
I.D. of riser pipe	2 inches
Type of riser pipe	Sch. 40 PVC
Depth of borehole	31 feet
Depth of well	29.25 feet

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HOLGUIN,
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& ASSOCIATES, INC.

ENVIRONMENTAL MANAGEMENT CONSULTANTS

ATTACHMENT 6

WATER SAMPLE LOGS

WATER SAMPLE LOG

PROJECT NO. California Department of Parks and Recreation DATE October 13, 1989

PROJECT NAME Candlestick Point

SAMPLE LOCATION MW-1

WEATHER CONDITIONS Clear, warm, windy

OBSERVATIONS/COMMENTS

QUALITY ASSURANCE

SAMPLING METHOD Teflon™ bailer

METHOD TO MEASURE WATER LEVEL TLC

PUMP LINES OR BAILER ROPES WERE NEW OR CLEANED? New

METHOD OF CLEANING BAILER/PUMP EPA Protocol

pH METER NO. Orion SA250 CALIBRATED YES, 4.01 & 7.00 pH

SPECIFIC CONDUCTANCE METER NO. YSI-3000 CALIBRATED YSI 3167 (1.000) - 0.960
YSI 3168 (9.987) - 7.90

COMMENTS Total depth = 30' 3.7"
pH meter not functioning properly, E1 error message

SAMPLING MEASUREMENTS

WATER LEVEL (BELOW MP) AT START 8' 6.2" END 8' 7.3"

WELL DEPTH

Time	Discharge (Gallons)	pH	Temp. (°C)	Specific Conductance umhos/cm		Color	Odor	Turbidity
				Field	@ 25°C			
1:00	0	-	20.3	5.51	6.06	grey	none	none
1:15	5	-	18.7	5.96	6.77	grey	none	some
1:18	10	-	18.9	5.38	6.17	grey	none	some
1:20	15	-	18.9	5.37	6.05	grey	none	some
1:23	20	-	18.9	5.75	6.50	grey	none	some
1:25	25	-	18.7	5.73	6.48	grey	none	some

TOTAL DISCHARGE 25 CASING VOLUMES REMOVED 6.5

METHOD OF DISPOSAL OF DISCHARGED WATER Stored on site in 55-gallon DOT drums

NUMBER AND SIZE OF SAMPLE CONTAINERS FILLED Two 500-milliliter vials, three one-liter vials, and two VOA vials

COLLECTED BY Randall Ellis

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Ventura, CA 93001 / (805) 652-0219

WATER SAMPLE LOG

PROJECT NO. California Department of Parks and Recreation DATE October 13, 1989

PROJECT NAME Candlestick Point

SAMPLE LOCATION MW-2

WEATHER CONDITIONS Clear, cool, windy

OBSERVATIONS/COMMENTS

QUALITY ASSURANCE

SAMPLING METHOD Teflon™ bailer

METHOD TO MEASURE WATER LEVEL TLC

PUMP LINES OR BAILER ROPES WERE NEW OR CLEANED? New

METHOD OF CLEANING BAILER/PUMP EPA Protocol

pH METER NO. Orion SA250 CALIBRATED YES, 4.01 & 7.00 pH

SPECIFIC CONDUCTANCE METER NO. YSI-3000 CALIBRATED YSI 3167 (1.000) - 0.960
YSI 3168 (9.987) - 7.90

COMMENTS Total depth = 30' 4"

Well pumped dry at 15 gallons discharge

SAMPLING MEASUREMENTS

WATER LEVEL (BELOW MP) AT START 13' 3.7" END 15' 1.8"

WELL DEPTH

Time	Discharge (Gallons)	pH	Temp. (°C)	Specific Conductance umhos/cm		Color	Odor	Turbidity
				Field	@ 25°C			
11:14	0	6.62	17.2	17.04	19.80	clear	none	none
11:19	5	6.67	16.7	19.69	>20	light brown	none	slight
11:22	10	6.85	16.9	19.98	>20	light brown	none	slight
11:25	15	7.02	17.2	>20	>20	light brown	none	slight

TOTAL DISCHARGE 15 gallons CASING VOLUMES REMOVED 5.5

METHOD OF DISPOSAL OF DISCHARGED WATER Stored on site in 55-gallon DOT drums

NUMBER AND SIZE OF SAMPLE CONTAINERS FILLED Two 500-milliliter vials, three one-liter vials, and two VOA vials

COLLECTED BY Randall Ellis

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WATER SAMPLE LOG

PROJECT NO. California Department of Parks and Recreation DATE October 13, 1989

PROJECT NAME Candlestick Point

SAMPLE LOCATION MW-3

WEATHER CONDITIONS Clear, warm, windy

OBSERVATIONS/COMMENTS

QUALITY ASSURANCE

SAMPLING METHOD Teflon™ bailer

METHOD TO MEASURE WATER LEVEL TLC

PUMP LINES OR BAILER ROPES WERE NEW OR CLEANED? New

METHOD OF CLEANING BAILER/PUMP EPA Protocol

pH METER NO. Orion SA250 CALIBRATED YES, 4.01 & 7.00 pH

SPECIFIC CONDUCTANCE METER NO. YSI-3000 CALIBRATED YSI 3167 (1.000) - 0.960
YSI 3168 (9.987) - 7.90

COMMENTS Total depth = 27' 3.5"

SAMPLING MEASUREMENTS

WATER LEVEL (BELOW MP) AT START 10' 4" END 9' 8.5"

WELL DEPTH

Time	Discharge (Gallons)	pH	Temp. (°C)	Specific Conductance umhos/cm		Color	Odor	Turbidity
				Field	@ 25°C			
12:07	0	6.85	17.7	3.79	4.48	clear	none	none
12:12	5	6.81	18.1	3.89	4.68	light brown	none	slight
12:15	10	6.64	18.0	3.79	4.40	light brown	none	slight
12:18	15	6.62	18.4	3.71	4.25	light brown	none	slight
12:20	18		18.0	3.61	4.19	light brown	none	slight

TOTAL DISCHARGE 18 gallons CASING VOLUMES REMOVED 5.3

METHOD OF DISPOSAL OF DISCHARGED WATER Stored on site in 55-gallon DOT drums

NUMBER AND SIZE OF SAMPLE CONTAINERS FILLED Two 500-milliliter vials, three one-liter vials, and two VOA vials

COLLECTED BY Randall Ellis

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73 No. Palm Street
Ventura, CA 93001 / (805) 652-0219

WATER SAMPLE LOG

PROJECT NO. California Department of Parks and Recreation DATE October 12, 1989

PROJECT NAME Candlestick Point

SAMPLE LOCATION MW-4

WEATHER CONDITIONS Clear, warm, windy

OBSERVATIONS/COMMENTS no immiscible layer

QUALITY ASSURANCE

SAMPLING METHOD Teflon™ bailer

METHOD TO MEASURE WATER LEVEL TLC

PUMP LINES OR BAILER ROPES WERE NEW OR CLEANED? New

METHOD OF CLEANING BAILER/PUMP EPA Protocol

pH METER NO. Orion SA250 CALIBRATED YES, 4.01 & 7.00 pH

SPECIFIC CONDUCTANCE METER NO. YSI-3000 CALIBRATED YES

COMMENTS YSI 3167 (1.000) = 1.36" 1.18

YSI 3168 (9.987) = 9.89 at 25", 8.35 Field

SAMPLING MEASUREMENTS

WATER LEVEL (BELOW MP) AT START 4' 11.4" END 5' 1.1"

WELL DEPTH

Time	Discharge (Gallons)	pH	Temp. (°C)	Specific Conductance umhos/cm		Color	Odor	Turbidity
				Field	@ 25°C			
3:30	0	7.15	18.59	>20	>20	grey	sewer	none
3:35	3	7.60	19.4	>20	>20	grey	sewer	slight
3:40	6	7.68	19.1	>20	>20	grey	sewer	slight
3:45	9	7.75	18.8	>20	>20	grey	sewer	slight
3:50	12	7.72	19.2	>20	>20	grey	sewer	slight
3:55	15	7.97	18.7	>20	>20	grey	sewer	slight
4:08	18	8.03	18.8	>20	>20	grey	sewer	slight
4:10	20	8.06	18.6	>20	>20	grey	sewer	slight

TOTAL DISCHARGE 20 gallons CASING VOLUMES REMOVED 5

METHOD OF DISPOSAL OF DISCHARGED WATER Stored on site in 55-gallon DOT drums

NUMBER AND SIZE OF SAMPLE CONTAINERS FILLED Two 500-milliliter vials, three one-liter vials, and two VOA vials

COLLECTED BY Randall Ellis

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Ventura, CA 93001 / (805) 652-0219

WATER SAMPLE LOG

PROJECT NO. California Department of Parks and Recreation DATE October 13, 1989

PROJECT NAME Candlestick Point

SAMPLE LOCATION MW-5

WEATHER CONDITIONS Clear, cool, windy

OBSERVATIONS/COMMENTS

QUALITY ASSURANCE

SAMPLING METHOD Teflon™ bailer

METHOD TO MEASURE WATER LEVEL TLC

PUMP LINES OR BAILER ROPES WERE NEW OR CLEANED? New

METHOD OF CLEANING BAILER/PUMP EPA Protocol

pH METER NO. Orion SA250 CALIBRATED YES, 4.01 & 7.00 pH

SPECIFIC CONDUCTANCE METER NO. YSI-3000 CALIBRATED YSI 3167 (1.000) - 0.960
YSI 3168 (9.987) - 7.90

COMMENTS Total depth = 29' 11"

SAMPLING MEASUREMENTS

WATER LEVEL (BELOW MP) AT START 8' 9.5" END 8' 8.5"

WELL DEPTH

Time	Discharge (Gallons)	pH	Temp. (°C)	Specific Conductance umhos/cm		Color	Odor	Turbidity
				Field	@ 25°C			
10:30	0	6.73	16.1	>20	>20	grey	slight sewer	none
10:33	3	6.84	17.2	>20	>20	grey	strong sewer	slight
10:35	8	6.83	18.4	>20	>20	grey	strong sewer	slight
10:37	13	6.86	17.6	>20	>20	grey	strong sewer	slight
10:40	18	6.86	18.1	>20	>20	grey	strong sewer	slight

TOTAL DISCHARGE 18 gallons CASING VOLUMES REMOVED 4.5

METHOD OF DISPOSAL OF DISCHARGED WATER Stored on site in 55-gallon DOT drums

NUMBER AND SIZE OF SAMPLE CONTAINERS FILLED Two 500-milliliter vials, three one-liter vials, and two VOA vials

COLLECTED BY Randall Ellis

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